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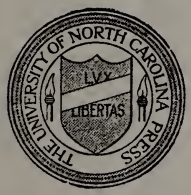
OCTOBER 20, 1938 NUMBER 335

THE UNIVERSITY OF NORTH CAROLINA RECORD



RESEARCH IN PROGRESS
OCTOBER, 1937–OCTOBER, 1938

GRADUATE SCHOOL SERIES No. 34

THE UNIVERSITY OF NORTH CAROLINA PRESS
ISSUED 12 TIMES A YEAR AS FOLLOWS: 4 NUMBERS IN FEBRUARY, 3 NUMBERS IN MARCH, 3 NUMBERS IN APRIL, 1 NUMBER EACH IN JUNE AND OCTOBER
ENTERED AS SECOND-CLASS MATTER AT THE POSTOFFICE AT
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RESEARCH IN PROGRESS
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CHAPEL HILL, N. C.

FOREWORD

The present issue of RESEARCH IN PROGRESS is the eighteenth volume of this publication. It contains, in the longest part, the record and summary analysis of the investigations accomplished and published and of those in process of completion by graduate students and faculty of the University of North Carolina during the year ending October 1, 1938.

In the first part, a report of grants from the Smith Research Fund is made. This fund, made available in 1924, is the income from the bequest of Robert K. Smith, and is administered by the Administrative Board of the Graduate School in aid of research. In Part III, reports of research organizations and publications are offered.

W. W. PIERSON, *Dean*

Library, Univ. of
North Carolina

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PART I

APPROPRIATIONS GRANTED FROM THE SMITH RESEARCH FUND

PROJECT NO.	APPLICANT	SUBJECT	AMOUNT
343	Lawrence F. London	For the purchase of cards to aid in making a bibliography of Confederate imprints	$ 60.00
344	Linton Lomas Barrett	For purchase of cards and for typing in making a Code Index of the *Siglo de Oro* Comedias	15.00
345	Sturgis E. Leavitt	For aid in assembling a list of theses dealing with Spanish-American language and literature	5.50
346	A. G. Bayroff	For the purchase of materials necessary for his research on the effect of isolation on the dominance of white rats	100.00
347	Richard Jente	For the purchase of two books, standard Dutch Dictionaries, to be used in the completion of an edition of an early Dutch collection of proverbs	102.25
348	George S. Lane	For the purchase of a complete set of two journals	100.00
349	Edgar W. Knight	For assistance in travel in connection with research on ideals and policies of higher education in the United States since 1869	40.00
350	Glen Haydon	For securing the scoring in modern notations of original music in connection with the doctorial dissertation of a graduate student in Music	77.25
351	Stuart Noblin	For travel to Washington and to several North Carolina libraries in connection with his doctoral research	34.60
352	Martin S. Shockley	For travel to Washington in connection with his study on the history of the theatre in Richmond, Virginia	25.00
353	U. T. Holmes	For engaging an expert in England to collate a privately owned manuscript	100.00
354	R. P. Bond	For travel to Chicago to consult libraries there in connection with his studies on Joseph Addison	50.00
355	W. P. Friederich	For travel from Berne to Zurich on frequent trips while he is in Switzerland to continue his studies on the literary relations between Switzerland and England in the 19th century	100.00
356	T. F. Hickerson	For assistance in publishing his book *Statically Indeterminate Frameworks* (granted on a contingent basis)	200.00
357	J. P. Harland	For the purchase of a book on Archaeology necessary in his studies of the Bronze Age civilization	35.00
358	R. S. Boggs	For the purchase of cards and for other assistance in continuing his bibliography of Spanish-American literature	90.00
359	Sapelo Treanor	For filming Old French MS No. 159 in the Bibliothèque Nationale for use in her doctoral dissertation	10.00
360	Paul W. McKee	For assistance in gathering materials necessary to his research in several short trips in the State	35.00
361	H. V. Wilson	For aid to a graduate student working under his direction to enable him to go to Beaufort	6.38

APPROPRIATIONS GRANTED FROM THE SMITH RESEARCH FUND

(Continued)

PROJECT NO.	APPLICANT	SUBJECT	AMOUNT
362	S. E. Leavitt	For the purchase of recent books in carrying out a survey of Spanish-American literature	$ 50.00
363	Stuart Noblin	For travel expenses to Washington and to several points in North Carolina to gather documentary materials on L. L. Polk	25.00
364	Gilbert S. Ohlmann	For securing film copies of two 16th century plays for the Huntington Library	8.15
365	Gordon H. Tucker	For travel expenses to Beaufort in his study of the origin and development of the gonads of a Tunicate	12.00
366	W. S. Jenkins	For travel expenses to Columbia and Savannah in connection with his study of certain Constitutional questions	100.00
367	Sapelo Treanor	For assistance in travel expenses to Europe to consult libraries with reference to her doctoral dissertation	100.00
368	Albert I. Suskin	For photostating of a periodical in connection with his research	3.10
369	J. L. Godfrey	For defraying expenses of securing film records of the Revolutionary Tribunal, Paris, 1793-1795	100.00
370	D. J. Rulfs	For travel expenses to Boston for work in the Boston Public and Harvard Libraries in connection with his doctoral dissertation	50.00
371	R. S. Boggs	For travel expenses to Mexico City to continue his work in Spanish-American Folklore	100.00
372	D. K. Spelt	For assistance in trips to Watts Hospital, Durham, N. C., in connection with his doctoral research	25.00
373	J. C. Russell	For travel expenses to Princeton to consult with specialists on population theory, in preparation for work in Europe this summer	35.00
374	R. P. Bond	For filming and photostating documentary materials for studies in the Queen Anne Period	50.00
375	Cecil Johnson	For aid in travel to Michigan this summer and for filming material on his study of West Florida	50.00
376	Paul W. McKee	For assistance in extending his work in the crustacea of the Piedmont region	35.00
377	Walter Lane Barksdale	For assistance in continuing his study of Trilliums in the mountains of North Carolina	40.00
378	William deB. MacNider	For transportation to Washington and Philadelphia in connection with his research	40.00
379	R. P. Johnson	For the purchase of films for a work "Compositiones Variae"	50.00
380	A. G. Bayroff	For the purchase of an electric timer necessary in his animal research	30.38
381	D. P. Costello	For assistance in his research this summer at Woods Hole	60.00
382	E. K. Plyler	For assistance in travel expenses to Ann Arbor in connection with his research	40.00

APPROPRIATIONS GRANTED FROM THE SMITH RESEARCH FUND

(Continued)

PROJECT NO.	APPLICANT	SUBJECT	AMOUNT
383	R. M. Wallace	For travel to Washington to consult certain rare books in the Library of Congress	$ 25.00
384	J. N. Couch	For assistance in employing a research assistant to aid in cultivating fungi	50.00
385	H. W. Straley, III	For transportation and other expenses in field work in a geomagnetic study in Virginia	50.00
386	David Kirby Spelt	For further assistance in transportation to Watts Hospital to continue his doctoral research	20.00
387	James K. Svendsen	For securing a microfilm of Pierre de La Primaudaye's *The French Acadamie* (1618) necessary to his doctoral research	10.85

RESEARCH IN PROGRESS

PART II

REPORT OF RESEARCH AND PUBLICATIONS BY DEPARTMENTS

DEPARTMENT OF ANATOMY

W. C. GEORGE has ready for publication:

Blood from the Standpoint of Phylogeny. (This paper represents in part Dr. George's retiring address as President of the North Carolina chapter of the Society of Sigma Xi, May, 1938. It was also given before the student body of the Duke University Summer School of Marine Biology, Beaufort, N. C., June, 1938.)

A comparison is made between the fundamental blood cell and wandering cell types in several groups of animals including sponges, flatworms, annelids, echinoderms, brachiopods, ascidians, and vetebrates, and the evidence is reviewed concerning the participation of these cells in functional activities of various groups of animals. The conclusion is reached that there are three fundamental morphological and physiological types of blood and wandering cells: (1) Relatively undifferentiated cells which serve as blastic cells. (2) Somewhat more highly differentiated cells which serve to dispose of endogenous and exogenous noxious materials and which in some cases at least are of some digestive significance. (3) Cells specialized to carry on intracellular digestion. In many invertebrates these cells are a significant part of the mechanism of digestion under normal conditions, although in the vertebrates it seems probable that this function is relatively vestigial.

In certain groups of animals other highly differentiated cell types are developed from primitive cells to participate in certain special functions such as respiration and digestion.

FRANK N. LOW has published:

Negative Effects of Endocrine Extracts on the Thymus of the White Rat. *Endocrinology*, 22: 443-446. April, 1938.

The action of anterior pituitary extract on the thymus is negative, as is the action of ovarian residue extract. Desiccated thyroid substance, when administered orally in proper amounts, increases the number of

cortical lymphocytes in the thymus. The action of eschatin (adrenal cortex extract) and the action of parathyroid extract on the thymus are negative. Rats treated with a combination of thyroid and ovarian preparations are in some way rendered susceptible to infections, which in turn cause the thymus to undergo involution.

EDWARD C. PLISKE has published:

The Follicular Cycle in the Sexually Mature Thirteen-lined Ground Squirrel. *Journal of Morphology,* **63**: 263-287. September, 1938.

The germinal epithelium was studied in an effort to determine its rôle in post pubertal ovogenesis. Active and inactive areas of epithelium were observed regardless of the oestrous periods. The active areas, exemplified by numerous mitoses and a frequent stratification of the epithelium, are foci for egg cell production.

Egg cells are produced from the germinal epithelium by: activation, migration, and transformation of single germinal epithelial cells; migration and differentiation of nests of cells; ingrowths of cords of cells.

Young ova in the cortex of the ovary are at first surrounded by a single layer of flattened follicular cells of germinal epithelial origin. In the subsequent development of the follicle stratified layers make their appearance. The zona pellucida appears as a well-defined structure coincident with the stratification of the follicular layers.

The follicular cavity develops as a split between the follicular cells at one side of the follicle. In the mature follicle the cavity is broad and contains liquor folliculi. The theca interna and externa are not distinguishable until the follicle is highly cellular.

DEPARTMENT OF BIOLOGICAL CHEMISTRY

JAMES C. ANDREWS has published during the year the following:

Reduction of Certain Sulfur Compounds to Hydrogen Sulfide by the Intestinal Microörganisms of the Dog. *Journal of Biological Chemistry* **122**: 687. 1938.

Studies on Cystinuria. The Effect of Administration of Large Doses of Ascorbic Acid and of Methionine to the Cystinuric. *Proceedings of the American Society of Biological Chemists,* VIII: 7: 3. March 30, 1938. (A more detailed paper covering the same subject is now ready for publication.)

A Laboratory Manual of Food Chemistry. Chapel Hill: University of North Carolina Book Exchange. 1938.

He has in progress research on the following subjects:

The Hydrolysis of Hair.

While some further work has been done on this subject during the past year, its general status is not changed in any important degree. A paper on this subject was presented before the North Carolina Academy of Science, Raleigh, May 14, 1938.

The Properties of Solutions of Amino Acids in Concentrated Sulfuric Acid.

A study is being made of solutions of certain amino acids, particularly cystine, in concentrated and in 100% sulfuric acid. The rate of racemization of the amino acid has been investigated, as well as its mode of decomposition at progressively elevated temperatures.

G. C. KYKER has completed the research on his doctoral dissertation: A Study of the Preparation and Properties of 6-Halogen Substituted Carvacrylamines and Derivatives. (See report from Department of Chemistry).

He has presented a paper before the North Carolina Section of the American Chemical Society, Raleigh, May 14, 1938: 6-Halogenated Carvacrylamines.

He has in progress research on the Separation of Proteins from Aqueous Solutions by Extraction with Chloroform.

An aqueous solution of certain proteins when shaken with chloroform forms a gel which is stable to centrifuging. The aqueous layer and the gel may be easily separated by decantation and the protein may be recovered from the chloroform-protein gel by the evaporation of the chloroform and drying. The method promises to furnish a means of separation and purification of proteins with less change in the structure of the protein than that which occurs with the methods generally used at the present time.

DEPARTMENT OF BOTANY

W. C. COKER has published:

The Blastocladiales, Monoblepharidales, and (with VELMA MATTHEWS) the Saprolegniales. *North American Flora* 2, Part 1: November 26, 1937.

W. C. COKER and H. R. TOTTEN are continuing their work on the Shrubs of the Southeastern States.

W. C. COKER and ALMA HOLLAND are continuing their work on the fungi.

H. R. TOTTEN is still working on a List of the Woody Plants of Giles County, Va.

J. N. COUCH has published:

A New Chytrid: *Nephrochytrium stellatum. American Journal of Botany* **25**: 507-511. 1938.

The species is characterized by the globose or ovoid apophysis connected to the somewhat flattened disc-shaped sporangium by a narrow isthmus, and by the exceedingly thick-walled brownish resting body with large protuberances on the wall, the persistent empty basal apophysis, and also the persistent empty spore cyst. Although the fungus grows as a saprophyte on *Nitella*, it has so far failed to grow on cooked *Nitella* or on the pollen grains of *Liquidambar* or *Pinus*.

The Genus Septobasidium. 302 pp., 114 pl. and 60 text figs. Chapel Hill: University of North Carolina Press. 1938.

PROFESSOR COUCH has directed the following research:

HELEN BERDAN. Revision of the genus *Ancylistes. Mycologia* **30**: 396-415. 1938.

J. E. ADAMS has completed and has ready for publication his monograph of *Arctostaphylos* Adans.

Anatomical studies in *Arctostaphylos* and certain other genera are being continued.

LELAND SHANOR has published the following:

Observations on the Development of a New Species of *Phytophthora. Journal of the Elisha Mitchell Scientific Society* **54**: 154-162. 1938.

LANE BARKSDALE has completed his master's thesis (degree to be awarded in June of 1939), under the direction of W. C. COKER AND J. E. ADAMS, entitled The Pedicellate Species of Trillium Found in the Southern Appalachians. Published in

the *Journal of the Elisha Mitchell Scientific Society,* 54: 271-296. 1938.

The following doctoral dissertation was accepted by the Department during the year:

*THOMAS EARLE SMITH. Host Range Studies with *Bacterium solanacearum* E.F.S. (Under the direction of R. F. POOLE.)

The susceptibility of eighty-five plant species to *Bacterium solanacearum* has been established by: (a) stem inoculations made with wedges of woody tissue from diseased tobacco plants; (b) natural infection when grown in the field on naturally infested soil under very severe disease conditions. The species were divided into three classes on the basis of their reactions to these two tests: (1) susceptible, positive by stem inoculation and natural infection; (2) resistant, positive by stem inoculation and negative by natural infection; (3) immune, negative by both methods of testing.

Twenty-seven species were positive to stem inoculation and natural infection and were listed as susceptible. Of these, tomato, rustica, eggplant, Jimson weed, black nightshade, croton, Spanish needles, and nasturtium became 100 per cent diseased from natural infection along with tobacco. In all, eight species of crop plants, eleven species of field weeds, and eight species of ornamental plants were susceptible, of which four species of weeds were new hosts.

Five species were positive by stem inoculation and negative by natural infection and were listed as resistant. Of these, cowpeas, soybeans, and velvet beans, being important legume crops, were studied intensively. It was demonstrated that: (1) they are not well adapted as food plants of the organism; (2) all varieties tested were immune to natural infection; (3) their immunity to natural infection allows them to be effectively used for at least one season in rotations for wilt control. Even though Koch's postulates can be fulfilled, it is concluded that these resistant plants are susceptible only as a result of artificial manipulation and hence not really susceptible to the disease. For the practical purposes of disease control under field conditions, they should be considered immune.

Fifty-three species were negative to stem inoculation and natural infection and were listed as immune.

Sweet potatoes, cotton, watermelon, fireweed, *Crotolaria striata,* velvet beans, Lima beans, soybeans and cowpeas have been reported in the literature as susceptible, but in these studies all were immune to natural infection and hence are not host plants of *Bacterium solanacearum* under field conditions.

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* This dissertation was accomplished under the joint direction of the Botanical Faculties of the North Carolina State College of Agriculture and Engineering and the University of North Carolina.

The following master's theses have been accepted by the Department during the year:

GEORGE ANDREW CHRISTENBERRY. A Study of the Effect of Light of Various Periods and Wave Lengths on the Growth and Asexual Reproduction of *Choanephora cucurbitarum* (Berk. and Rav.) Thaxter. (Under the direction of W. C. COKER, J. N. COUCH, and J. E. ADAMS.) Published in the *Journal of the Elisha Mitchell Scientific Society,* 54: 297-310. 1938.

Linear expansion of mycelium is not affected by different periods or wave lengths of light. Aerial mycelium is produced most abundantly under yellow light, and least abundantly under blue or violet light. Red and red-yellow light causes the production of an aerial mycelium intermediate between the other two. Radiations of twenty-five minutes with ultra-violet light will kill the vegetative mycelium, but radiations of shorter duration will only force the mycelium to grow into the agar. Red light is slightly inhibitive to asexual fruiting, and red-yellow light is stimulative. Wave lengths shorter than 571$\mu\mu$ (yellow, blue, and violet light) are more and more inhibitive to asexual reproduction as the wave lengths become shorter and shorter.

JAMES ARTHUR DOUBLES, JR. Myxomycetes of the Chapel Hill Area. (Under the direction of J. N. COUCH.)

Since no study of the myxomycetes of the Chapel Hill area has been made, the writer has undertaken to prepare a preliminary list with taxonomic notes. Collections have been made during the fall, winter, and spring months of 1937 and 1938. Of the eleven genera and twenty species found in this region, *Stemonitis fusca, Stemonitis splendens, Lycogala epidendrum, Arcyria nutans, Arcyria denudata, Trichia varia, Trichia favoginea, Hemitrichia serpula, Hemitrichia vesparium,* and *Hemitrichia clavata* are the most common. *Fuligo septica, Physarum viride, Leocarpus fragilis,* and *Perichaena depressa,* although not as frequently observed, are not uncommon. From the collections made by the author it is apparent that the variety of species of myxomycetes found in the Chapel Hill area during the fall, winter, and spring months is not large, although the individual species which occur here are represented by large numbers. There is no doubt, however, that the writer's list could be considerably increased by a continuation of the study during summer months.

FRANCES K. FOUST. Studies on *Rozella* and *Pleolpidium.* (Under the direction of JOHN N. COUCH.)

A new species of *Rozella* parasitic on *Allomyces arbuscula* Butler is described, called *Rozella allomycis.* The development and germination

of the sporangium have been studied; and the zoöspores were found to possess a single posteriorly attached cilium, which is directed backwards when swimming. The identity of the spiny resting body with the parasite has been definitely established, and its development and germination observed. The spores are similar to those from the primary zoösporangia. The development of *Pleolpidium irregulare* Butler has been studied for comparison. The germination of the resting bodies has been observed for the first time. The uniciliate zoöspores, the development of the sporangium and resting body are similar in the two organisms studied. No evidence of fusion of spores has been found in either. The division of the genus *Rozella* by Fischer has been discussed.

JANE GAGE LEITNER. New Species of *Achlya* and *Apodachlya*. (Under the direction of W. C. COKER and J. N. COUCH.) Published in part in the *Journal of the Elisha Mitchell Scientific Society*, 54: 311-318. 1938.

Two new species of *Apodachlya* are described as *A. minima* and *A* n. sp. (b) and are compared with other species. Experiments to induce the formation of sporangia in *Apodachlya minima* are discussed, and the germination of the egg is described. A new species of *Achlya* with strong tendencies to heterothallism is described as *A. regularis*. Experiments show that heterothallism is not yet fully established, weak homothallic responses occurring under certain conditions.

DEPARTMENT OF CHEMISTRY

FRANK K. CAMERON has published during the year:

(With P. H. BURDETT.) Fundamental Properties of Textile Wastes. III. Gas Bubbles. *Textile Research*, 8: 226. 1938; VII. Electric Charge on Escaping Gas Bubbles. *Textile Research*, 8: 356. 1938.

(With B. R. CLANTON.) Fundamental Properties of Textile Wastes. IV. Flotation. *Textile Research*, 8: 270. 1938; V. Flotation from Ferric Oxide Sols. *Textile Research*, 8: 301. 1938.

(With J. E. MAGOFFIN.) Fundamental Properties of Textile Wastes. VIII. The Flotation of Colloidal Suspensions. *Textile Research*, 8: 357. 1938.

Foreword on a series of publications from his laboratory entitled The Fundamental Properties of Textile Wastes. *Textile Research*, 8. 1938.

The Growing and Processing of "Whole Cotton." *Manufacturers Record,* CVII: 27. 1938.

PROFESSOR CAMERON is directing investigations of The Fundamental Properties of Textile Mill Wastes, assisted by JAMES E. MAGOFFIN, Assistant Professor for Industrial Research, and three Honorary Fellows. The work is supported by a grant from the Textile Foundation. The following investigations are in progress:

P. H. BURDETT. (Progress on doctoral dissertation.) The Charge Carried by Fine Sprays of Liquids, and the Relation of Charge to Surface Area.

B. R. CLANTON. (Progress on doctoral dissertation.) Adaptation of Flotation Methods to Colloidal Suspensions.

L. C. SURPRENANT. (Progress on doctoral dissertation.) Migration Velocity Studies on Sodium Stearate Sols.

PROFESSOR CAMERON is directing investigations on the uses of whole cotton. (See DAVID T. MILNE'S doctoral dissertation below.) A grant from the Cotton Foundation of Memphis through the Mellon Institute for Industrial Research has enabled GEORGE C. HOLROYD to study refining of the oil recovered by solvent extraction. As an Honorary Fellow MR. HOLROYD is now engaged in studying methods of producing cellulose derivatives directly from whole cotton with avoidance of an intermediate pulping (progress on doctoral dissertation).

PROFESSOR CAMERON is directing an investigation of the use of aqueous sulfur dioxide for extracting alumina from naturally occurring sources. By vapor pressure studies W. F. BARTZ (progress on doctoral dissertation) has shown that at ordinary pressures and temperatures at least one acid sulfite of alumina is stable. From it alumina is obtainable and the sulfur dioxide becomes available for re-use. Application of the procedure developed to alumina-rich minerals is being tried systematically, and a study of the preparation of alumina of high purity is being made.

DAVID T. MILNE. (Doctoral dissertation.) The Growing and Processing of Whole Cotton.

Study of field and laboratory data shows that whole cotton can be grown to make economically feasible its use as an annual source of oil and alpha cellulose. Laboratory comparisons of processing whole cotton with the processing of other raw materials for cellulose production are favorable to whole cotton. An efficient and cheap harvesting technique has been developed, with a satisfactory removal of ash constituents.

JAMES T. DOBBINS has directed the following research:

MARY EUGENIA KAPP. A Semi-Micro Scheme of Qualitative Analysis for the Anions.

A new semi-micro scheme of analysis for the identification of the anions has been developed. The scheme, based on the fundamental principles of oxidation-reduction and amphoterism, stresses the influence of hydrogen ion concentration on reactions of this type. By controlling this hydrogen ion concentration certain pairs of oxidizing and reducing anions can be made to coexist unchanged in solution. For example, if the acidity of a solution of sulfite and chromate is made low enough, these ions may remain together, each ion retaining its original identity. In other words, the oxidation potentials of these ions in such a solution are so low that no reaction will take place between them. In two instances only, such interference has not been eliminated, namely, the reactions of ferricyanide with iodide and with sulfide; in each of these cases reaction takes place without the influence of hydrogen or hydroxyl ion.

In accordance with the theoretical principles involved and the specific properties of the various ions, the anions are divided into five groups according to their behavior with certain metallic ions: Group I, carbonate, fluoride, oxalate, tartrate, sulfite, arsenate, arsenite, and phosphate, precipitated from alkaline solution by the calcium ion; Group II, sulfate and chromate, precipitated by the barium ion from alkaline solution; Group III, sulfide, ferricyanide, ferrocyanide, and borate, precipitated in alkaline solution by the cadmium ion; Group IV, cyanide, thiosulfate, thiocyanate, chloride, bromide, and iodide, precipitated from a nitric acid solution by the silver ion; and Group V, acetate, chlorate, nitrate, and nitrite, having no precipitating agent. Because of the specificity of identifying tests very few subdivisions are necessary.

Organic reagents are used whenever advantageous for identification, but in some cases inorganic substances are more practical.

JOHN ALBERT SOUTHERN. *A Semi-Micro Scheme of Qualitative Analysis.*

A new semi-micro scheme of qualitative analysis for the common metal ions has been devised. The scheme is proposed to meet the requirements of inorganic analysis. Advantage has been taken of many organic reagents which have been discovered or developed during the past few years for the detection of the metal ions. The use of organic reagents greatly increases the sensitivity and specificity of the tests. Several new tests have been applied and many others modified so as to increase their sensitivity or specificity. Some changes in the grouping of the metal ions have been made, which have given a more logical and orderly classification of the metals. Many of the tedious separations of the classical scheme have been either removed or greatly simplified. The use of the centrifuge has completely done away with the necessity of all filtrations.

The following observations substantiate the belief that the proposed scheme is an improvement over the micro and semi-micro schemes to be found in the literature and text books: (a) ease of manipulation, (b) accuracy or results, (c) pedagogical value, (d) economy of materials and (e) a saving in time due to the reduction in the number of steps required to carry out the procedure.

H. D. CROCKFORD has published during the year:

(With J. C. LOFTIN) The Activity Coeffiicients of Lead Chloride in Aqueous Solutions of Mannitol at 25°. *Journal of the American Chemical Society,* **60**: 1607. 1938.

PROFESSOR CROCKFORD has directed the following research:

P. M. NICHOLES (doctoral dissertation). Activity Coefficients of Lead Chloride in Aqueous Solutions. An Investigation Concerning the Effect of Temperature on the Debye-Hückel Ion Size Parameter.

Activity coefficients of lead chloride in aqueous solutions over a sixty-four fold range of concentration have been calculated for temperatures of 0°, 25°, and 50°C from electromotive force measurements on the cell:

$$Pb\text{-}Hg/PbCl_2(m_1)/AgCl(s)/Ag$$

The mean distance of closest approach of the ions in solution has been calculated for each concentration at the temperatures employed by means of the extended equations of LaMer, Gronwell, and Greiff.

The effect of temperature on the 'a' parameter has been studied, using both experimental values and values adjusted according to the procedure of LaMer, Gronwell, and Greiff.

From results obtained a critical discussion of the mean distance of closest approach has been given and the conclusion reached that the extended equations of LaMer, Gronwell, and Greiff are inadequate when applied to the ion size parameters of small magnitude as exhibited by lead chloride.

W. G. SINK. (Progress on doctoral dissertation.) A Study of Single Electrode Potentials in Lead-Acid Storage Cells as Affected by Certain Added Substances.

S. M. WIDEMAN. (Progress on doctoral dissertation.) A Study of the Activity Coefficients of Sulphuric Acid in Certain Aqueous Solutions as Determined by EMF Measurements.

RALPH W. BOST has published during the year:

(With P. H. LATIMER.) Sulfur Studies XIII. The Identification of Some Aliphatic Sulfonic Acids. *Journal of the American Chemical Society,* 59: 2500. 1937.

(With DAN FORE, JR.) Sulfur Studies XIV. Some Derivatives of Certain Higher Mercaptans. *Journal of the American Chemical Society,* 59: 2551. 1937.

(With WALKER HUNTER, JR.) The Destructive Distillation of Peanut Hulls. *Journal of the Elisha Mitchell Scientific Society,* 53: 293. 1937.

PROFESSOR BOST has directed the following research:

G. C. KYKER. (Doctoral dissertation.) A Study of the Preparation and Properties of 6-Halogen Substituted Carvacrylamines and Derivatives.

A study of the preparation and properties of 6-iodo-, 6-bromo-, and 6-chlorocarvacrylamines from 6-nitrocarvacrylamine has been made.

The 6-nitrocarvacrylamine was obtained by synthesis from p-cymene according to the following steps: (1) by the dinitration of p-cymene with fuming nitric acid and sulfuric acid to give 2,6-dinitro-p-cymene and (2) by the reduction of one of the nitro groups with ammonium sulfide to give 6-nitrocarvacrylamine.

The dinitration of cymene was studied at -5° to -3°, at -7° to -5°, and at -12° to -10°. Decided improvements in the quantity and quality of product accompanied a lowering of the reaction temperature. It was shown that the separation of 2,6-dinitro-p-cymene from the nitrotoluenes, which were also formed in the reaction, was accomplished best by reduction of the partially purified nitration product with ammonium sulfide and subsequent separation of the nitro amines through the solubilities of their hydrochlorides. 2-Nitro-p-toluidine was isolated and identified as the main product of the side reaction. The preparation of 6-nitrocarvacrylamine from p-cymene was decidedly improved.

The 6-nitrocarvacrylamine gave 2-halogen-6-nitro-p-cymenes by diazotization and replacement of the amino group with iodine, bromine, and chlorine. The reduction of these halogenated nitro compounds yielded 6-iodo-, 6-bromo-, and 6-chlorocarvacrylamines, respectively, which were isolated as their hydrochlorides. The formation of the chloro derivative yielded 2-nitro-5(6-nitrocarvacrylazo)-6-hydroxy-p-cymene as a by-product.

The 6-chlorocarvacrylamine hydrochloride was converted to the free base and was characterized by its physical constants and by numerous derivatives. The hydrochloride, hydrobromide, nitrate, hydrogensulfate, phenylsulfonate, p-tolysulfonate, dichloroacetate, trichloroacetate, oxalate, 3,5-dinitrobenzoate, 2,4,6-trinitrobenzoate, and picrate were found to be crystalline salts. The acetyl, benzoyl, 3,5-dinitrobenzoyl phenylsulfonyl, p-tolysulfonyl, p-bromophenylsulfonyl, and m-nitrophenylsulfonyl derivatives were prepared by treating the amine, dissolved in pyridine, with the corresponding acid chloride; having very definite melting points, these derivatives were excellent for characterization of the amine. Treatment with picrylchloride gave a picryl derivative, and 6-chloro-2-cymylurea was obtained by condensation with potassium cyanate. By coupling with itself, the amine gave 2,2′-diazoamino-6,6′-dichloro-p-cymene. Five azo dyes were prepared from the following couplers: 1-naphthol, phenol, resorcinol, phloroglucinol, and 1,8-dihydroxy-3,6-naphthalene disulfonic acid. The dyes were applied to wool, silk, cotton, and rayon and were tested for fastness toward light, washing, alkalies, and perspiration. The dyes were of varying shades of red, yellow, and brown.

BERNARD BERGER. (Progress on doctoral dissertation.) The Stability of Certain Hydrocarbons to Direct Sunlight.

The gum forming tendencies of pinene, limonene, tetralin, iso-octane, diisobutylene, 2-methyl butene-2 and diallyl were studied alone and with the following reagents: benzoyl peroxide, n-butraldehyde, acetic acid, metallic sodium and zinc chloride. The hydrocarbons were placed in sealed ampoules with the appropriate reagent and subjected to direct sunlight for several months. At definite intervals analyses were made on each ampoule for peroxides, aldehydes, acids and gums. A more detailed report will be given later.

J. H. LANGSTON. (Progress on master's thesis.) Some Derivatives of Thiosalicylic Acid.

The following S-alkyl thio salicylic acids were prepared and characterized: methyl, ethyl, n-propyl, iso-propyl, n-butyl and ter-butyl. These compounds were then oxidized to their corresponding sulfones which are now being investigated.

P. H. LATIMER. (Progress on doctoral dissertation.) Some Derivatives of Certain Alkyl Sulfonic Acids.

The alkyl sulfonic acids through n-heptyl sulfonic acid have been made and characterized. The corresponding alkyl sulfonyl chlorides have been prepared and their action studied with phenols, amines, certain amides and some polyfunctional compounds.

J. FRANK NICHOLSON. (Progress on doctoral dissertation.) The Use of 2,4-Dinitrochlorobenzene as a Reagent in Organic Analysis.

2,4-Dinitrochlorobenzene has been studied with phenols, amines, alcohols and acids. Approximately seventy-five derivatives of this reagent have been prepared and characterized. Some possible commercial uses of certain of those derivatives are now being investigated.

O. K. RICE has published:

The Solid-Liquid Equilibrium in Argon. *Journal of Chemical Physics,* **6**: 472. 1938.

On Communal Entropy and the Theory of Fusion. *Journal of Chemical Physics,* **6**: 476. 1938.

PROFESSOR RICE has directed the following research:

E. P. H. MEIBOHM. (For the master's degree.) Construction of an Apparatus for the Study of the Time of Initiation of Photochemical Chains in Organic Substances by the Rotating Sector Method.

He is directing:

C. V. CANNON. (Progress on doctoral dissertation.) The Photolysis of Azomethane in the Presence of Inert Gases.

LEON GALLOWAY. (Progress on doctoral dissertation.) An Experimental Study of the Kinetics of the Decomposition of Dimethyltriazene.

W. L. HADEN, JR. (Progress on doctoral dissertation.) Continuation of the work of Mr. Meibohm, and use of the apparatus in the study of the photolysis of acetaldehyde. Also preliminary work looking forward to a study of the temperature dependence of the rate of recombination of iodine atoms.

PROFESSOR RICE has finished work on a book on Application of Atomic and Molecular Theory to Inorganic Chemistry.

He is continuing his research on the theory of fusion.

JAMES E. MAGOFFIN has published:

(With H. T. HATCH*.) Fundamental Properties of Textile Wastes. VI. Electrophoresis of Platinum and Gold Hydrosols. *Textile Research,* 8: 305. 1938.

(With B. R. CLANTON.) Fundamental Properties of Textile Wastes. VIII. The Flotation of Colloidal Suspensions. *Textile Research,* 8: 357. 1938. (Read before the American Chemical Society, Dallas Meeting, April 1938.)

PROFESSOR MAGOFFIN has the following research in progress:

Migration Velocity Studies on Cotton Hydrosols, under a grant from the Textile Foundation for the study of the fundamental properties of textile wastes.

ALFRED RUSSELL gave a lecture on The Chemistry of Natural Tannins at the Seventh National Organic Chemistry Symposium of the American Chemical Society at Richmond, Virginia, December 28-30, 1937.

PROFESSOR RUSSELL has directed the following research:

SAMUEL F. CLARK. (Progress on doctoral dissertation.) A Synthetic Investigation of the Constitution of Natural Tannins.

The results of this investigation were presented, in part, at the Fall meeting of the American Chemical Society held at Milwaukee, Wisconsin, September 5-9, 1938.

W. B. HAPPOLDT. (Progress on doctoral dissertation.) The Relation between Chemical Constitution and the Tanning Effect: the Synthesis of Polyhydroxy Diaryl Sulfones.

EDWIN R. ANDREWS. (Progress on doctoral dissertation.) The Relation between Chemical Constitution and the Tanning Effect: the Synthesis of Polyhydroxy Depsides.

EDWIN C. MARKHAM has directed the following research:

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* Mr. Hatch was a Junior Investigator for the Textile Foundation until his death in February, 1938.

SAMUEL BRADLEY KNIGHT. (Doctoral dissertation.) The Decomposition of Mono-Deutero Ammonium Chloride.

According to the valence theory of Sidgwick all hydrogen atoms in the ammonium ion have the same degree of chemical reactivity although all bonds are not formed in the same manner.

In order to investigate this theory deutero ammonium chloride was prepared by the interaction of pure deuterium chloride and pure ammonia. Decomposition of this compound with a base yields a gas mixture of 71% NH_2D and 29% NH_3. Assuming hydrogen and deuterium to have the same activation energy, a gas mixture of 75% NH_2D and 25% NH_3 is expected.

These results lend support to the Sidgwick theory although there is a slight difference between the expected and observed results, this discrepancy being attributable to the difference between the zero point energies of hydrogen and of deuterium.

(With J. T. DOBBINS.) T. R. KIMBROUGH. (Progress on Master's thesis.) The inclusion of molybdenum, titanium, tungsten and vanadium in the scheme of analysis as proposed by DOBBINS, MARKHAM, and EDWARDS.

SHERMAN E. SMITH has compiled a Technical Manual on "Cellophane," now in press.

PROFESSOR SMITH has continued, with W. W. OWEN, the study of the Permeability of Cellulosic Membranes to Gases and Vapors. This work was supported throughout the year by E. I. duPont de Nemours and Co.

The effect of the moisture content of "Cellophane" on its permeability to carbon dioxide has been determined for a wide range of moisture contents. The results further confirm the solution mechanism for gas permeability previously suggested.

DAVID MILNE has published:

"Whole Cotton," An Annual Source of Cellulose. *Rayon Textile Monthly*, XIX: 540. 1938.

DEPARTMENT OF CLASSICS

Studies published during the past year:

J. PENROSE HARLAND:

Helladic Bothroi. *American Journal of Archaeology*, XLII: 121. 1938.

G. A. HARRER. Review of A. C. Johnson, *Roman Egypt to the Reign of Diocletian, An Economic Survey of Ancient Rome,* Volume II. Baltimore. 1936. *The Classical Journal,* XXXIII: 428-431. 1938.

R. P. JOHNSON:

The Manuscripts of the *Schedula* of Theophilus Presbyter. *Speculum,* XIII: 86-103. 1938.

Microphotography and its application to Classical Scholarship. *Classical Weekly,* XXXI: 95-99. 1938. (Presented as a paper at the meeting of the Classical Association of the Middle-West and South at Iowa City.)

Review of F. A. Wright, *Marcus Agrippa, Organizer of Victory.* New York. 1937. *Classical Weekly,* XXXI: 188. 1938.

Research in progress:

P. H. EPPS:

The Likelihood of Mistranslations in the Greek Gospels. (Article).

The Inadequacy of a Sensuous Vocabulary to Convey Non-Sensuous Experience. (Article).

J. PENROSE HARLAND:

The Site of Troy. (Article.)

The Helladic Civilization. (Book.)

The Excavations of Tsoungiza. (Book.)

G. A. HARRER:

Fasti Consulares: A Second Supplement to Liebenam's Work. (With A. I. SUSKIN.)

R. P. JOHNSON:

The Compositiones Variae, an Introductory Study. (To appear in the *Illinois Studies in Language and Literature,* Vol. XXIII, now in press.)

The Compositiones Variae, text, commentary, and translation.

The Mappae Claviculae, text, commentary, and translation.

A. I. SUSKIN:

Fasti Consulares. (See above under HARRER.)

Index Verborum Iuvenalis. (With LUCILE KELLING.)

The following doctoral dissertation was completed during the year under the supervision of the Department:

B. W. DAVIS. The Administration of the Roman Province of Crete and Cyrenaica. (Under the direction of G. A. HARRER.)

This work is chiefly a chronological study of the Roman officials of the province of Crete and Cyrenaica, territories that came under Roman dominion not at the same time, but which were united into a single province.

Chapter I gives a résumé of the history of the two countries prior to their annexation by Rome, a discussion of the circumstances under which both lands came into the possession of the Romans, and a detailed statement of the administrative organization of the province, based upon epigraphical and literary evidence. It has been found that Cyrenaica was established as a Roman province in 74 B.C., Crete was annexed in 67 B.C., and the two were organized into one senatorial province *ca.* 55 B.C., the evidence for the union being the legend on coins struck in the province.

Chapter II consists of a collected list of all the known governors of the province, together with a discussion of the available evidence for dating each one's term of office. Normally the governor was an ex-praetor with the title of proconsul, having under his command a legatus and a quaestor, but certain men were governors before they held the praetorship, probably for a special reason. In some instances, governors under Vespasian following the civil war, 68-70, were legati instead of proconsuls.

Similarly Chapter III presents all the known minor Roman officials with an examination of the evidence to fix their terms of office as closely as possible.

The appendix contains the edicts of Augustus found at Cyrene in 1927, of which an English translation has been made, and, for purposes of reference, a complete chronological list of all the known officials of Crete and Cyrenaica from the organization of Cyrenaica as a province in 74 B.C. to the reign of the emperor Diocletian, 284-305 A.D.

The index consists of all the ancient proper names of primary importance in the discussions throughout the study.

The following master's thesis was completed during the year under the supervision of the Department:

ELOISE BAYNES. The Commentary of Asconius Pedianus on Cicero's *Pro Milone.* (Under the direction of G. A. HARRER.)

This thesis is a translation of Asconius Pedianus' commentary on Cicero's oration *Pro Milone* with an introduction and explanatory notes. Asconius, scholar of the first century A.D., wrote commentaries of historical nature on Cicero's orations. That on *Pro Milone* is important for an understanding of the oration. He gives a detailed account of the historical background, quotes difficult passages of the oration, giving explanations to them, and concludes with a paragraph summing up the results of the case and other trials following it. In the introduction to this study an attempt has been made to give a succinct account of the case. For the translation there is given for expression and accuracy a revision of Watts' partial translation, and parts are added which he lacked, on the basis of the critical editions of Clark, Giarratano, Stangl, and Long, with Clark's edition the chief basis of the translation as a whole.

The following studies have been undertaken by candidates for advanced degrees:

THOMAS MOORMAN SIMKINS, JR. A History of Roman Pontus and Bithynia. (For the doctor's degree.)

VIRGINIA BECKETT SIMKINS. The Roman Legio XII Fulminata. (For the doctor's degree.)

EVELYN WAY. Seneca's Influence on Later Historians. (For the doctor's degree.)

LAURA ELIZABETH BLAND. Asconius' Commentary on Cicero's *In Pisonem.* (For the master's degree.)

IDA LOUISE HUNTER. Panegyricus Constantino Augusto Dictus, by Nazarius. (For the master's degree.)

EDITH N. SETZER. *Scholia Bobiensia* on Cicero's *Pro Sestio.* (For the master's degree.)

MYRTLE TANNER. Asconius on Cicero's *Pro Cornelio.* (For the master's degree.)

MARJORIE WEATHERUP. *Scholia Bobiensia* on Cicero's *Pro Plancio.* (For the master's degree.)

DEPARTMENT OF DRAMATIC ART

FREDERICK H. KOCH has served as editor of *The Carolina Play-Book,* a quarterly journal published by the Carolina Playmakers.

PROFESSOR KOCH has published the following articles:

In *The Carolina Play-Book*:

I Can't Write a Play, X:3. 1937; Play-Acting, X:3. 1937; Playmaking at Banff X:3. 1937; The Nineteenth Season, X:4. 1937; Immortal Duse, XI:1. 1938; Negro Ritual Drama, XI:1. 1938; The Fifteenth Festival, XI:2. 1938; Western Canada, XI:2. 1938.

In *The Carolina Stage,* published by The Carolina Dramatic Association:

Our School Stages, III:1. 1937; A High School Summer Session in Dramatic Art, III:2. 1938.

The Drama of Roanoke. *The Lost Colony,* an illustrated souvenir program book, July, 1938.

Plays for Schools and Little Theatres—A New Descriptive List. *University of North Carolina Extension Bulletin,* XVI:4. 1936.

Making a Native Folk Drama. *Southern Folklore Quarterly,* I:3. 1937.

SAMUEL SELDEN, on a fellowship grant from the John Simon Guggenheim Memorial Foundation, is preparing a book on Basic Design in Play Directing.

PROFESSOR SELDEN has published:

First Principles of Play Direction. University of North Carolina Extension Bulletin, XVII:4. November, 1937.

"The Lost Colony" as Communal Theatre. *Lost Colony Souvenir Program,* Manteo, N. C., Summer, 1938.

The following full-length plays were accepted during the year by the Department, in lieu of the research thesis, for the master's degree:

ELEANOR M. CLOUGH. Canned Health: A Modern Farce. (Under the direction of PAUL GREEN.)

This original three-act farce is primarily a satire against present day advertising methods. The plot concerns the sophisticated Best family who successfully "can" health and sell it to the American public in order to overcome a financial crisis in their lives.

Running through the play as an undercurrent is the love story of the unmarried daughter, Virgin Best, whose ideal turns from health and wealth to happiness with a young farmer.

LYNETTE HELDMAN. The Gird of the Wilderness. (Under the direction of PAUL GREEN.)

The independent spirit fostered in the wilderness of America in the seventeenth century is the theme of this three-act play. This spirit, growing within the pioneers, precipitated a break with European loyalties long before the American Revolution. The struggle of a young man, born in America, Hendrick Manning, against the foreign ties of his aunt, Annetje De Vries, a Dutch woman, and his father, Wallis Manning, an English merchant, is depicted against the background of the contention for Dutch and English supremacy in New York.

LOIS LATHAM. A New Heart, A Play of the Carolina Mountains. (Under the direction of PAUL GREEN and FREDERICK H. KOCH.)

"A New Heart" is a three-act play written with a view to re-creating the atmosphere, sights, sounds, and smells of the Nantahala Mountains in western North Carolina, and the culture, language, emotions, and actions of their people.

The theme of the play is woman's gift for evoking and cherishing life which in possessed by some women and is called by the mountain people, "the growin' hand".

VIRGIL JACKSON LEE, JR. *The Last Pagan,* A Chronicle Play of Julian the Apostate. In Two Parts. (Under the direction of FREDERICK H. KOCH.)

Part I, in five scenes, is entitled THE FORGE. Julian is seen as a boy of eight, when his father was killed by order of the Emperor Constantius and when he himself was saved only by the appearance of a troop of cavalry under the command of a tribune friendly to his family. Subsequently Julian is shown as a novitiate monk and student at Athens, where he meets Athene Charissa, an Athenian maiden with ideals akin to his own; later his elevation to Caesarship through the friendship of the Empress Eusebia is depicted. Part I concludes with Julian's coronation by rebellious troops at Paris.

Part II, in six scenes, is entitled ANTI-CHRIST. It concerns itself with Julian's march eastward to meet the armies of Constantius and his plans to restore the Hellenic religion and culture if victorious; his apostasy from the Christian church, and his induction into Mithraism by Maximus, the great magus of Ephesus; his realization of the futility of his dreams at Antioch; and his disastrous campaign against the Persians. Woven into the chronicle of his life are two themes: his love for the maiden, Athene, who symbolizes in her defection from Hellenism to Christianity the inevitability of Julian's defeat, and the life-long friendship between the old general Severus and the young Emperor. Julian's death is presented as the result of a conspiracy of Christians in his own camp.

VIVIAN ELLEN VEACH. Growing Acres. (Under the direction of PAUL GREEN.)

The westward movement in the settlement of the United States and the consequent evolution of a powerful democracy involved more personal adjustment on the part of the pioneer than is supposed by the casual heir to his domain. The peopling of western Kansas in the 'eighties has been the center of interest in this play. No longer did hostile Indians bother the settlers, but nature's own obstacles, drouth, grasshoppers, hot winds, almost beat down the adventurers. In *Growing Acres* it is shown that shackling nature's resources even in the face of defeat is possible only through a passionate love of the land.

The following master's theses were accepted during the year by the Department:

LUBIN POE LEGGETTE. The Epigram in the Dramatic Works of Shaw and His Contemporaries, Pinero, Jones, and Wilde. (Under the direction of ROBERT B. SHARPE.)

The epigram, as it is used in modern drama, is a generalized statement of tenet, viewed through a single application, which makes a "point of unit." Pinero's use of the epigram is, comparatively speaking, very small but not inconsequential. His *Second Mrs. Tanqueray*, the first modern English drama, was based on a philosophic epigram. Jones inaugurates for the modern period the humorous epigram satirizing English society; however, his use of the epigram is rather diminutive. With Oscar Wilde the humorous epigram is supreme. He is the most prolific epigrammatist in English drama. Shaw combines the philosophic epigram of Ibsen and Pinero and the humorous-satiric epigram of Jones and Wilde, producing such a jolting effect on his audience that it is inspired to think—a real service to mankind!

MARY LEIGH SCALES. A Study of Stage Decoration in America Between the years 1840 and 1882, as Described in Contemporary Documents. (Under the direction of SAMUEL SELDEN.)

The art of stage decoration in America progressed from a position of complete dependence on the London stage, in 1840, to a position in which it commanded its own artists and ideas in 1882. A gradual technical development in scenery took place during the period from 1840 to 1870. The principal factors in this change were the adoption of the box-set and the vogue for spectacular and historically accurate scenery. During the years 1870 to 1882 a number of experiments in the mechanics of stage decoration took place, not all of which led to permanent improvement. Scenic design was considered a separate branch of the theatrical arts, and scenery was executed with little regard for the acting or the play itself. Although romantic scenery was not uncommon, realism was the outstanding trend in scenic design during the years 1840 to 1882.

JOHN A. WALKER. Stage Lighting Apparatus in England and America During the Nineteenth Century. (Under the direction of SAMUEL SELDEN.)

In this thesis various instruments used for artificial lighting on the stages of England and America during the nineteenth century are set forth and explained. At the beginning of this period candles and oil lamps were the common illuminants, and around the middle of the century gas light came into general use. Then, toward the end of the century, electricity became the common installation. Material is also presented covering the background of the candle and oil theatre during the sixteenth and seventeenth centuries.

The conclusion traces briefly the evolution of present-day apparatus and notes the new conception of the use of stage lighting which came with the improvements of equipment around the turn of the century.

DEPARTMENT OF ECONOMICS AND COMMERCE

E. E. PEACOCK is directing the following research:

F. M. HAWLEY, JR. (Progress on master's thesis.) A Cost Accounting System for a Medium-sized Furniture Manufacturing Company.

ERICH W. ZIMMERMAN has published:

The Relation between Population Density and the Manner

of Soil Utilization (or Exploitation) in Colonial Areas. *Proceedings,* International Congress of Geography, Amsterdam, the Netherlands, July 13-18, 1938.

A review of Martin, R. F., *International Raw Commodity Price Control. The American Economic Review,* June, 1938.

A review of Dell, B. N. and Luthringer, G. F., *Population, Resources and Trade. The American Economic Review,* September, 1938.

A review of Pabst, W. R., Jr., *Butter and Oleomargarine: An Analysis of Competing Commodities. The Southern Economic Journal,* January, 1938.

A review of Bennett, M. K. and Farnsworth, H. C., *World Wheat Acreage, Yields and Climates. The Southern Economic Journal,* April, 1938.

A review of Altschul, E. and Strauss, F., *Technical Progress and Agricultural Depression. The Southern Economic Journal,* October, 1938.

A review of Gebhardt, Anno von. *Die Zukunftsentwicklung der Java-Zucker-industrie. Pacific Affairs,* Fall, 1938.

He has in progress:

Book on the Foundations of Social Economy.

Revision of World Resources and Industries.

A Spanish Translation of *World Resources and Industries.*

PROFESSOR ZIMMERMANN is directing the following research:

O. T. MOUZON (Progress on doctoral dissertation). Recent Developments of the Southern Pulp and Paper Industries and their Economic and Social Implications.

D. F. MARTIN (Progress on doctoral dissertation). The Economics of the Naval Stores Industry.

R. J. M. HOBBS has in progress:

Cases and Statutes Dealing with Government Control of Business.

JOHN B. WOOSLEY has published:

A review of *Present Day Banking*, 1937, published by Banking: Journal of the American Bankers Association. *The American Economic Review*, XXVII: 834, December, 1937.

A review of Gruchy, A. G., *Supervision and Control of Virginia State Banks. The American Economic Review*, XXVIII: 172-173, March, 1938.

A review of Willis, Parker B., *The Federal Reserve Bank of San Francisco. The Southern Economic Journal*, IV: 494-495. April, 1938.

Trends in North Carolina Banking, 1927-1937, pp. 152 (In Coöperation with the Research Committee of the North Carolina Bankers Association).

This study delineates the economic, financial, and legislative forces which affected North Carolina banks during the period surveyed. Against this background, the detailed operations of those banks which successfully weathered the depression were appraised by a ratio analysis of the individual asset and liability items. The several banks, classified on the basis of deposit liabilities, were broken down into six groups and the ratios for each group were compared with those of other groups as well as with similar percentages for the state and nation. Trends in the capital structure, deposit liabilities, primary reserves, loans and discounts and the bond account emerged from this procedure. The effect of economic and legislative changes on the income and expense items for the years 1931-1937 were also depicted. Finally, a large sample of state banks which failed were subjected to a similar analysis and the comparison of the percentage ratios of successful and unsuccessful institutions suggested fourteen factors which contributed to bank failures in this state.

He has in progress:

Criteria of Successful Banking.

PROFESSOR WOOSLEY is directing the following research:

BRANT BONNER. (Progress on doctoral dissertation.) State Bank Failures in North Carolina.

G. T. SCHWENNING has published:

The Science of Production Organization (with E. H. ANDERSON). New York: John Wiley & Sons, 1938. Pp. x, 282.

A review of Yoder, Dale, *Personnel and Labor Relations. The Southern Economic Journal,* IV:4. April, 1938.

He is continuing his study of The Dismissal Wage.

As Managing Editor of *The Southern Economic Journal,* he has assisted in editing Volume IV, Nos. 2, 3, 4, and Volume V, No. 1.

PROFESSOR SCHWENNING is directing the following research:

J. C. D. BLAINE. (Progress on master's thesis.) Plant Location as a Problem of Industrial Management.

J. B. HACKETT. (Progress on master's thesis.) A Survey of the Methods of Evaluating Personnel Work.

CLARENCE HEER has published:

Financing the Social Security Program in the South. The Southern Economic Journal, January, 1935.

He has had accepted for publication:

Federal Aid and the Tax Problem. Staff study Number 4 of The Advisory Committee on Education.

He has in progress:

Fiscal and Economic Effects of the Social Security Program.

PROFESSOR HEER is directing the following research:

F. H. BUNTING. (Progress on doctoral dissertation.) Federal-State Relations in the Financing of Relief.

C. H. DONOVAN. (Progress on doctoral dissertation.) Fiscal Readjustments in North Carolina, 1929-1937.

C. E. KUHLMAN. (Progress on doctoral dissertation.) The

Operating Results of Municipally-owned Public Utilities in North Carolina.

H. D. WOLF has published:

The Enforcement of Collective Labor Agreements: A Proposal. *Law and Contemporary Problems,* V:2, 1938.

He is directing the following research:

C. P. ANSON. (Progress on doctoral dissertation.) History of the Labor Movement in West Virginia.

M. K. HORNE, JR. (Progress on doctoral dissertation.) Unemployment Compensation in Mississippi.

M. A. EAKIN. (Progress on master's thesis.) Schisms in the American Labor Movement.

D. H. BUCHANAN has published:

A review of Clyde, Paul Hibbert, *A History of the Modern and Contemporary Far East. The Southern Economic Journal,* July, 1938.

A review of Ishii, Ryoichi, *Population Pressure and Economic Life in Japan. The Southern Economic Journal,* October, 1938.

He has in progress:

Studies in Japanese Industrial and Commercial Development.

E. M. BERNSTEIN has published:

Public Utility Rate Making in Depression. *Quarterly Journal of Economics,* LII: 113-128. November, 1937.

The difficulties of public utility rate making in a period of depression are briefly stated, and the methods used by commissions during the recent great depression are considered.

Public Utility Rate Making and the Price Level. Chapel Hill: University of North Carolina Press. 1937.

This study shows how the rate making rule and its procedure were developed, considers the difficulties of rate making in a period of chang-

ing prices and interest rates, discusses new methods used by commissions to avoid these difficulties, and offers a reasonable solution for the rate making problem.

He has completed for publication:

Wage Rates and Employment.

This paper discusses the effect on employment of a general reduction in wages during depression, and the effect of a reduction in wages in the investment goods industries.

He has in progress (with EARL HICKS):

A paper on Indirect Methods of Measuring the National Income.

PROFESSOR BERNSTEIN is directing the following research:

EARL HICKS. (Progress on doctoral dissertation.) Money, Wages, and Prices in the Confederacy.

JOHN KENDRICK. (Progress on master's dissertation.) The Monetary Theories of Francis A. Walker.

MALCOLM D. TAYLOR is continuing his survey of the research work in Marketing in progress in universities and colleges throughout the United States. Summaries of parts of this study have appeared under the title "Progress in Marketing Research—Research in Universities" in the following publications:

The Journal of Marketing, II:2:146:152. October, 1937.
The Journal of Marketing, II:3:236-242. January, 1938.
The Journal of Marketing, II:4:314-317. April, 1938.
The Journal of Marketing, III:1:96-102. July, 1938.

Further reports on this survey will appear in the October, 1938, and January, 1939, issues of *The Journal of Marketing.* This Journal is published quarterly by the American Marketing Association.

M. S. HEATH has completed:

Public Coöperation in Railroad Construction in the Southern United States to 1861. (Doctoral dissertation: Harvard University.)

He has in progress:

The Economic Aspects of the Development of Transportation in the Southern United States.

PROFESSOR HEATH is directing the following research:

F. S. WILDER. (Progress on doctoral dissertation.) Regional Variations in American Standards of Living.

BERTIE M. MCGEE. (Progress on doctoral dissertation.) The Economic Development of North Georgia.

J. G. EVANS has completed the following research:

Transportation Factors in Urbanization. (To be published by the National Resources Committee.)

He has in progress:

Concepts of the Nature and Solution of the Surplus Problem in American Agriculture.

A Theory of Effective Resource Utilization.

R. H. SHERRILL is directing the following research:

R. W. CRUTCHFIELD. (Progress on master's thesis.) An Analysis of the Capital and Revenue Expenditures of the Federal Government, 1932-1937.

D. J. COWDEN has published:

A review of Davenport, D. F. and Scott, F. E., *An Index to Business Indices. The Southern Economic Journal,* April, 1938.

He has in progress in collaboration with F. E. CROXTON of Columbia University:

Applied General Statistics. To be published by Prentice-Hall in the spring of 1939.

R. S. WINSLOW has published:

A review of *The New Deal: An Analysis and Appraisal.* By the editor of the Economist (London). *The Southern Economic Journal.* January, 1938.

He has had accepted for publication:

A monograph on "Conflicting Interests" which will appear

in a book on Economic Problems, edited by Willard Thorp and to be published by Farrar and Rhinehart.

He has in progress:

The Educational Function of the Course in the Principles of Economics.

E. H. ANDERSON has published:

The Science of Production Organization (With G. T. SCHWENNING). New York: John Wiley and Sons. 1938. 282 pp.

For abstract see *The University of North Carolina Record, Research in Progress,* October, 1936-1937. Graduate School Series No. 32, p. 34, Edward Hutchings Anderson, *The Process of Internal Organization.*

A review of Doherty, Richard P. and Hartmann, Max, *The Structure of American Business. The Southern Economic Journal,* IV:4. April, 1938.

A review of Davis, Ralph C., *Business Organization and Operation. The Southern Economic Journal,* V:2. October, 1938.

He has in progress:

A paper on Scientific Management and Production Economics.

C. H. DONOVAN has published:

A review of O'Leary, Paul M. and Batterson, John, *An Introduction to Money, Banking, and Corporations. The Southern Economic Journal,* IV:4. April, 1938.

He has in progress:

Some Economic and Social Implications of Technological Progress.

F. H. BUNTING has published:

The Purchasing Power Parity Theory Reexamined, *The Southern Economic Journal,* January, 1939.

A review of Geddes, Anne, *Trends in Relief Expenditures 1910-1935,* Research Monogram X of the Division of Social

Research, Works Progress Administration. *The Southern Economic Journal,* October, 1938.

A. T. BONNELL has in progress:

Assembly and organization of material for text in European Economic History.

Preparation of monograph on German International Economic Relations Since 1930.

Investigation of material for a brief study of the general problem of interregional trade and interregional finance in the United States, with special reference to North and South relations, to be included in a study entitled Foreign Trade Begins at Home.

The following master's theses were completed during the year:

JACKSON MCCALEB BALCH. A Post-War Survey of River Plate Trade Conditions As They Affect American Shipping Services. (Under the direction of Erich W. Zimmermann.)

The River Plate Countries of Argentina and Uruguay are agricultural and will remain so for many years. There has been considerable industrialization recently, but the consensus is that this will not develop to any great extent for several years at least.

The region has fine railroad, coastal steamship, and river transportation services. The ports are excellent, especially those of Buenos Aires, Rosario, Montevideo, Santa Fe, and Bahia Blanca.

The trade between the United States and the River Plate nations is a fluctuating one, and is subject to the discriminatory tariff and exchange policies of Argentina and Uruguay. Droughts in the United States have recently stimulated the trade, but already trade statistics show that it is subsiding rapidly.

The principal products exported from the United States are: machinery, finished metal goods, lumber, and petroleum products. Of the imports from the River Plate, linseed, quebracho, hides, fertilizer, wool, and grains are the most important. Coffee from Brazil must be considered one of the most important commodities carried along the trade route.

American flag services operating along the route are subject to severe competition from foreign lines. There are four regular line services flying the American flag: the Munson Steamship Line (now in receivership), the American Republics Line (government owned), the Delta Line, and the Pacific Argentine Brazil Line. The private lines men-

tioned above have had to depend upon government mail contracts for operating profits. These lines have been guilty of poor financial practices, but are now proceeding with sounder managements at their heads.

EARL HICKS. The Monetary Theories of Alexander Del Mar. (Under the direction of E. M. BERNSTEIN.)

Alexander Del Mar (1836-1926) was a dilettante in monetary theory, a man who wandered into the field through the circuitous route of a mining engineering education and an absorbing interest in the classics and classical history. So unorthodox an introduction produced, as might be expected, a man of novelty and naïveté—a man who was at the same time deprived of the accumulated knowledge and principles of nineteenth century writers, and freed from the tyranny of a monetary theory gone to seed.

Unencumbered with academic respect for gold, Del Mar found in history and in common sense the materials from which to forge a powerful indictment of the gold standard and of any monetary system which encouraged the production of gold, and he came to conclusions so much in the spirit of modern monetary theory that he might be called the precursor, or even the father, of modern American theory.

Writing history with the license of the prophet, Del Mar concluded that "the history of money is the history of civilization," and he produced an enormous mass of history to substantiate his ambitious thesis. The glories of Athens, Rome, and Elizabethan England, he asks us to believe, were monetary phenomena—phenomena which accompanied either the bugaboo of inflation, as in Elizabethan England, or the equally frightening ogre of governmental control of the monetary machine, as in Greece and Rome. Like all who have gone to history with a thesis to prove, he finds in his argument the cause of Rome's fall.

Specifically, Del Mar added little to the trappings of economic and monetary theory. His chief contributions were a concept which he calls "the precession of prices," and a novel search for the cause of interest. "The precession of prices" is a concept which attempts to explain the reaction of prices to a hyper-inflation, and to make realistic the analysis of the simple quantity theory. Prices, he explains, will rise only after a lapse of time and will rise in a series, or precession, created by differences in the "marketability" of goods.

Concerning the rate of interest, Del Mar finds its cause in "the rate at which animals and plants mature." The latter phrase has been much abused. Del Mar did not attempt to convey the idea that interest is payable because trees increase in girth and height with the passage of time. His intention was to connect interest with the rate of growth of the national capital.

More important than the details of his analysis is the general tenor of his ideas—the spirit of monetary management—and his concept of the nature of money as purely a creature of law, an institution whose signi-

ficance lies, not in the coin and its characteristics, but in the total quantity of money available to the community. In that spirit is found his claim to the paternity of modern monetary theory.

W. W. HOWELL. Cost Accounting for a University Cafeteria. (Under the direction of E. E. PEACOCK.)

This thesis is an attempt to develop a system of cost analysis which is applicable to the state university cafeteria. It deals briefly with specific problems of food cost accounting and the relationship of cost analysis to operating and financial control, with particular reference to the state operated cafeteria.

Primary forms for purposes of financial control, internal check, and the gathering of necessary data for the cost records are illustrated and described. The records of final entry consist of a series of cumulative cost analysis sheets instead of formal ledger accounts. These sheets replace regular accounts because the amount of detail involved could not be handled effectively and quickly through a system of formal accounts.

The system provides for the determination of food, labor, and overhead costs by departments: namely, kitchen, bakery, pantry, and dining hall. Provision is also made for determining the cost of principal food ingredients for food groups: such as, beef, pork, sea foods, etc.; and a comparison of these principal ingredient costs with the sales of prepared food. Due to the great amount of detail involved, it is not considered practical to attempt to find the costs by individual dishes.

The concluding chapter of the thesis deals with periodic statistical and operating reports which may be prepared from the cost system and which are essential in the successful management of the cafeteria.

DEPARTMENT OF EDUCATION

HARL R. DOUGLASS has published:

What Business Education Problems Do Administrators Consider Important? *Business Education World.* September, 1937.

A report of data from a questionnaire study of business education problems which are considered important by 326 school administrators.

Implications for the Secondary Schools. *Education Digest,* October, 1937. (An abstract of *Secondary Education for Youth in Modern America.* Chapter VI.)

A Program of Universal Secondary Education. *Education Digest,* September, 1937. (An abstract of *Secondary Education for Youth in Modern America.* Chapter V.)

Effect of a Course in Occupations on the Vocational and

Educational Plans of Ninth Grade Children. *School Review,* October, 1937 (with MELVIN HAUGEN).

A report of a study of pupils in the ninth grade of two junior high schools in Minneapolis to determine the influence of a course in occupations in changing vocational and educational intentions.

Socio-Economic Status of the Home as a Factor in Success in the Junior High School. *Elementary School Journal,* October, 1937 (with J. H. COLLINS).

An intensive case study of the importance of home environment in the failure of bright Negro junior high school pupils in Kansas City, Kansas.

Relation of High School Latin to Marks in the First Year of Arts College. *School Review,* November, 1937.

A study to determine the influence of high school credits in Latin on college marks. The study included 1,025 men and women who entered the College of Science, Literature, and Arts at the University of Minnesota in the fall of 1933.

A Comparison of School Records and Ratings of Boy Scouts and Non-Scouts. *School Review,* December, 1937 (with A. R. MONSON).

A study of the relation between scouting and certain characteristics of students as shown by high school records. The study was made in the junior high schools of Minot, North Dakota and in the Model School of the State Teachers College at Minot.

Persistence and Mark in the University of Minnesota Law School. *Journal of Educational Research,* December, 1937 (with L. J. LUKER).

A study of the relation between the marks of students in the University of Minnesota Law School and their persistence in continuing in school.

The Study Practices of Three Hundred Ninety-Five High School Pupils. *Journal of Educational Psychology,* January, 1938 (with H. C. BAUER).

A summary of data from a questionnaire study of the attitudes and practices with respect to study of three hundred ninety-five students in five high schools in Minnesota.

The Relation of Business Education to General Education. *The Balance Sheet,* February, 1938.

Directions of reorganization of instruction in business education as a part of general education.

Mathematics. *Review of Educational Research,* VIII: 51-57. February, 1937 (with L. B. KINNEY).

A chapter in the volume on *Psychology and Methods in the High School and College.* It reviews recent research studies in the psychology and methods of teaching mathematics.

Classroom Practices of Teachers. *English Journal,* March, 1938 (with ANNA M. FILK).

A report of data from a check-list study of classroom practices in the teaching of English in three-year senior high schools and four-year high schools in Minnesota. Includes returns from one hundred and sixty-three teachers.

"Natives" versus "Transfer Students" in the Law School. *American Law Review,* May, 1938.

A study of the relative success of "native" students compared with "transfer" students in the Law School at the University of Minnesota. "Native" students are those who completed their pre-law studies at the University of Minnesota, while "transfer" students did their pre-law work at another institution. The study covers the entering classes of 1933 and 1934.

Teaching Practices in Junior High School. *Social Education,* May, 1938 (with ANNA M. FILK).

A report of data from a check-list study of classroom practices of sixty-two teachers of history and social studies in junior high schools in Minnesota.

The Education of Teachers as an All-Institution Responsibility as Planned at the University of North Carolina. *Southern Association Quarterly, August,* 1938. Also appeared in *Bulletin of the Minnesota Association of Secondary School Principals,* February, 1938. An address delivered before the Southern Association of Colleges and Secondary Schools, Dallas, Texas, March 31, 1938.

Youth and the Schools. *North Central Association Quarterly,* October, 1938.

A discussion of some of the problems of American youth which have a direct influence on the program of secondary education.

Teaching Reading in the Secondary School. *Claremont Colleges* 1937 *Reading Conference,* Claremont Colleges, Pomona, California, 1938.

A review of most important investigations and trends in the teaching of reading in secondary school.

PROFESSOR DOUGLASS has in progress:

Manuscripts completed but not published:

Factors Conditioning Scholastic Success in the School of Pharmacy at the University of Minnesota (with MARJORIE MOORE).

A statistical evaluation of the possibility of predicting scholastic success in the School of Pharmacy from previous records and tests given during the first week in the School of Pharmacy Variables studied included: Pre-Pharmacy college average, subjects taken in pre-pharmacy college years, high school average mark, subjects taken in high school, Minnesota Pharmacy Aptitude Test prepared especially by members of School of Pharmacy staff, mathematical ability test, Iowa chemistry test, several reading and vocabulary tests, institutions in which pre-law work was done, age, and tests of general intelligence.

Multiple correlation and regression techniques revealed that success in the School of Pharmacy could be predicted with an encouraging degree of accuracy ($R_{0.1234}$=.70 to .77) when based on high school average, chemistry aptitude test, mathematics ability test, and a reading test. Success was not related to nature of course taken in high school or in college previous to entering School of Pharmacy.

The purpose of the following studies and the techniques used are similar to those in the companion study described above:

Factors Conditioning Scholastic Success in the School of Business Administration at the University of Minnesota (with ROBEN J. MAASKE).

Factors Conditioning Scholastic Success in the College of Dentistry at the University of Minnesota (with CONSTANCE MCCULLOUGH).

Factors Conditioning Scholastic Success in the School of Nursing at the University of Minnesota (with RUTH MERRILL).

Factors Conditioning Scholastic Success in the School of Law at the University of Minnesota (with LEONARD J. LUKER).

Factors Conditioning Scholastic Success in the School of Medicine at the University of Minnesota (with STANLEY LINDLEY).

Factors Conditioning Scholastic Success in the General College at the University of Minnesota (with LEVI LOVEGREEN).

Factors Conditioning Scholastic Success in the College of Education at the University of Minnesota (with DALE O. PATTERSON).

The Development of Statistical Indexes for Approximating Comparability Among Scholastic Marks of Students Transferring to the University of Minnesota from other Institutions of Higher Education (with ROYAL BLOOM).

A statistical investigation aimed at developing coefficients on the basis of subsequent marks in the University of Minnesota for converting into comparable measures marks of students transferring from other institutions of higher education.

The Relationship Between Type of Campus Residence and Scholastic Success at the University of Minnesota (with FRANK VAN ALSTYNE).

A controlled comparison of college marks of groups of students selected to be of approximately equivalent ability who lived (a) in fraternity houses (b) in dormitories (c) in private rooming houses (d) at home.

Relative Scholastic Success of Students Transferring to the University of Minnesota from Junior Colleges, Teachers Colleges, and Liberal Arts Colleges (with NICHOLAS FATTU).

A study of the relative scholastic success of groups of students transferring from Junior Colleges and other types of colleges; and a comparison of junior college marks with subsequent marks of the same students at the University of Minnesota.

The Development of Statistical Indexes for Approximating Comparability Among Scholastic Marks of Students From Various Groups of Secondary Schools (with LEVI LOVEGREEN).

A statistical investigation aimed at developing coefficients for converting marks made in secondary schools into comparable measures on the basis of the subsequent college marks of the students.

Manuscripts in process of preparation:

Mathematics for Today. This is a series of three textbooks for use in classes in mathematics in junior high schools. To be published by Henry Holt and Company (with L. B. KINNEY).

Plane Geometry. This is a textbook to be published by the Singer Publishing Company.

Teaching Load—a review of studies of the teaching load of instructors in elementary and secondary schools and institutions of higher education, to appear in *Encyclopedia of Educational Research* (with WILLIAM T. GRUHN).

Chapter on "How Can the Secondary School Aid Pupils to Utilize Better an Increasing Knowledge of Natural Forces and Phenomenon?" for a book on *High School Methods,* R. D. Russell, Editor.

Editor and Chairman of the Committee of the National Society of College Teachers of Education to prepare the Yearbook on *Introduction to the Improvement of College Instruction.*

PROFESSOR DOUGLASS is serving on the editorial staffs of educational periodicals as follows:

Associate Editor, *The Junior-Senior High School Clearing House.*

Board of Editors, *National Business Education Quarterly.*

Contributing editor of *Journal of Experimental Education.*

Departmental Editor of *Business Education World.*

EDGAR W. KNIGHT has published:

Education in the United States in 1937. 1938 *Britannica Book of the Year.*

"Education — The Greatest Public Business," "So Many Significant Enterprises," "If Youth Knew! If Age Could!", and "Lands and Goods — A Plea for Library Facilities," in *School Management* for May, June, September, and October, 1938.

Books on Education, 1937. *Social Education,* January, 1938.

PROFESSOR KNIGHT has contributed the following articles to the *Dictionary of American History* (Scribner's): "Kindergarten", "Dame Schools", "Latin Schools", "National Education Association", "Old Field Schools", "Peabody Fund",

"Academies", "Berea College Case", "Colleges and Universities", "Charity Schools", "Coeducation", "Common Schools", "Board of Education", "High Schools", "General Education Board", and "Franklin's Academy."

He collaborated with the Educational Policies Commission of the National Education Association and the American Association of School Administrators on a volume entitled *The Purposes of Education in American Democracy,* published in the fall of 1938.

He has completed *A Story of Education,* a general history of education to be published in the spring of 1939.

He has continued his study of ideals and policies in American higher education since 1860, as these are revealed in the inaugural addresses and reports of college and university presidents.

PRESTON C. FARRAR has published:

Training Pupils to Think. *High School Journal,* February and March, 1938.

Review of *Ways of Thinking and Writing* by Cushwa and Cunningham. *High School Journal,* November, 1937.

Review of *The Study of English Literature* by Cowardine and More. *High School Journal,* November, 1937.

CARLETON E. PRESTON served as Managing Editor of the *High School Journal* during the year.

PROFESSOR PRESTON has published:

Shall the Subject Matter of Science Determine Objectives? 1937 *Proceedings of the National Education Association of Science Instruction,* pp. 8-14.

The High School Journal (Science Column). Facing the New Year, October, 1937; Science and Curriculum Changes, December, 1937; Books May Be Harmful, February, 1938; Science and the Changing Curriculum, May, 1938.

HUGO GIDUZ has published:

The 1937 Placement Tests in French at the University of North Carolina. *High School Journal,* December, 1937.

This is the eighth annual study of the placement tests given to entering freshmen by the French department. The study this year showed that there has been some improvement over past years. The difference is not yet very great, but there seems to be an upward trend in the achievement of students of French coming from the North Carolina high schools. Their preparation, though somewhat better than in former years, is still not so good as that of out-of-state students.

The Norris School. *High School Journal,* November, 1937.

This is a brief description of the work done in the progressive school located in the town of Norris, Tennessee. Vocational and adult education are given special attention in this school. It functions throughout the year and serves not merely the children but the whole community.

(With HERMANN H. STAAB) *Contemporary French Readings in Commerce, Economics, History, and Sociology.* Mimeographed, Chapel Hill, 1938.

(With U. T. HOLMES, JR.) *Les Contes des Sept Sages.* New York: Farrar & Rinehart. 1938.

A. K. KING has continued progress on A Study of the Social Philosophy of Thomas Paine.

J. MINOR GWYNN has published:

More Recent Publications—A Bibliography. *High School Journal,* XXI: 144-146. April, 1938.

This is a list of newer publications of special aid and interest to secondary school teachers in the field of the classics. 1937 is the basal year. It includes books, pamphlets, texts, bulletins, and articles in non-classical periodicals.

High School Journal (Latin Column): The Committee on Classical Education, February, 1938; Issues of Prime Import Face High School Classical Teachers at State Meeting in March, March, 1938.

PROFESSOR GWYNN has completed a preliminary study of the problem of the addition of another grade to the North Carolina school system, centered around indicative implications for the curriculum and school organization and administration, for publication in the fall of 1938. He is also continuing his study of historical changes in the college curriculum.

ROBEN J. MAASKE has completed:

Factors in the Prognosis of Scholastic Success in the University of Minnesota School of Business Administration.

The central problem of the study involved an analysis of the results of a battery of tests administered to juniors entering the Minnesota School of Business Administration during each of the years, 1934-1935, 1935-1936, and 1936-1937, to determine their value as instruments for predicting the degree of scholastic success which could normally be expected of each individual student. Several subsidiary problems, such as a comparison of the scholastic success of "transfer" and "native" students, the homogeneity of student groups entering from different undergraduate two year courses in various institutions, and others were investigated.

The statistical technique of analysis of variance, devised to test simultaneously the statistical significance of the difference among any number of group means, was employed to determine whether the juniors entering during each of the three years were sufficiently homogeneous in general ability and preparation to warrant the projection of regression equations, based on these groups, upon new entering groups of juniors in succeeding years. The results provide a sound basis for concluding that the entering groups during each of the years are homogeneous samples from the same population and are equivalent in general ability and preparation.

Some of the more important conclusions from the study were:

(1) Neither the high school record nor any particular subjects in it are of significant value in predicting the probable scholastic success of juniors entering the Minnesota School of Business Administration.

(2) The single variable predicting scholastic success with greatest accuracy is the adjusted pre-business honor point ratio. The most practical combination of variables with the adjusted pre-business honor point ratio for predicting scholastic success, as indicated by the first year honor point ratio, is, in the order of their value (a) modified Wesley Test of Social Terms and (b) the Business Mathematics Test.

(3) Students entering the junior year in this study under 20.5 years are, as a group, significantly superior in scholarship to those students above 20.5 years, as a group. For the group studied a significant superiority in scholastic achievement of women over men existed.

(4) Through using a combination of variables it is possible to set a critical point below which but very few students will succeed, and above which students will range from a few doubtful students up to very good students, scholastically.

ROBEN J. MAASKE has published:

Using the Panel Discussion Method in High School Teaching. *The High School Journal* 21: 44-48, 72. February, 1938. This article also appeared in the *Oregon Education Journal* 12: 22-23. March, 1938.

Principles and Methods in Adult Education. Copyright 1938. 104 pp. (mimeographed).

The Organization of Rural School Music Festivals. *Music Educators' National Conference Yearbook*, 1937. Pp. 244-245.

PROFESSOR MAASKE is directing the following research:

RALPH D. ARROWOOD. An Evaluation of the State System of Public School Transportation in North Carolina. (For the master's degree.)

T. B. FREEMAN. An Evaluation of Two Methods of Conducting a Public School Relations Program through the Newspapers. (For the master's degree.)

W. D. PERRY has in progress:

A Study of the Reading Difficulties of College Freshmen.

An evaluation is being made of the effectiveness of examinations of eye movements as computed from Ophthalmograph readings and subsequent practice periods on the Metron-o-scope. The procedure is as follows:

First, the students are given Ophthalmo-graph readings from which are computed:

1. Number of words read per minute.
2. Number of regressions per one hundred words.
3. Number of fixations per one hundred words.
4. Average span of recognition.
5. Average duration of fixation.

Second, twenty to twenty-five minute practice periods of rhythm reading are given on the Metron-o-scope. The number of periods assigned for each student varies with the reading disability.

Third, re-tests are given on the Ophthalmo-graph and the two records are compared to determine what improvement, if any, has resulted from training on the Metron-o-scope.

W. D. PERRY has in progress:

A Study of Emotional Instability of School Children.

The problems attempted in this study are: the recognition of poor mental health habits by the twenty-five teachers in a school population of nine hundred and sixty-five children; work by the teachers under the supervision of the Director of the Study with those children who exhibit emotional instability; the inauguration in the school system of suggested class-room procedures in the hope that better mental habits will result; the setting up of tests at the various grade levels from the primary grades through high school which will attempt to locate emotionally unstable students.

WILLIAM T. GRUHN has published:

Suggestions for Unit Planning (mimeographed). Board of Education, Aberdeen, South Dakota, 1937. Pp. 83.

This publication contains practical suggestions on unit planning for practice teachers and for beginning teachers.

MR. GRUHN has completed:

Elementary School Methods Migrate to America. (Under the direction of E. W. KNIGHT.)

MR. GRUHN has in progress:

Teaching Load, a review of studies of the teaching load of teachers in elementary and secondary schools, and institutions of higher education, to appear in *Encyclopedia of Educational Research* (with HARL R. DOUGLASS).

W. J. E. CRISSY has published:

A Selected List of Tests and Test Batteries for Use in High School Counseling. *High School Journal,* January, 1938. (Abstract appeared in *Vocational Guidance Digest,* June, 1938.)

MR. CRISSY has had accepted for publication:

(With J. W. M. ROTHNEY) Statistics of Skeletal Age and Their Relation to Mental Age.

He has in progress, under the direction of A. M. JORDAN:
Physical Indices of Pubescence (doctoral dissertation).

The following doctoral dissertations were accepted by the Department during the year:

NITA KATHARINE PYBURN. The Antecedents of the North Carolina School Law of 1839. (Under the direction of EDGAR W. KNIGHT.)

The purpose of this study is to ascertain the economic, social, and political antecedents of the North Carolina School Law of 1839. The distinctive feature of that law appeared in the fact that it made no distinction between the children of the well-to-do and those of the poor; all were to be admitted equally to the educational facilities provided by this legislation. This was a departure from the long established precedent of European countries and from that of nearly all the American States. A study of the forces which influenced the passage of the law serves to show why North Carolina was one of the first to make the transition according to law from the old aristocratic conception of a dual system of education to the more democratic practice of a common school system free to all.

After summarizing the national antecedents of the law the study attempts to present a synthesis of the social, economic, and political conditions of North Carolina just after the War of 1812, when the Assembly first appointed a committee on education. It then traces the agitation for a state-system of elementary schools in the legislatures and in the newspapers from 1815 to 1839 in the light of the changing conditions and in relation to the assumption of the responsibility by the State for other social and economic needs.

It appears that no one person was definitely responsible for the enactment of the school law of 1839. The history of the act and the vote in the counties on it revealed that this legislation was a definite evolution. It does appear however, that certain groups of people and certain sections of the State worked more energetically and consistently than others for the legislation. There was always more agitation in the Senate, which represented the wealth of the State, than in the House, which represented the people, for a state-system of elementary schools. Throughout the period from 1815 to 1839 the champions of state-supported schools were from the north central section, the northeastern section, and New Hanover County. There was little agitation from the eastern section of the state for public education. Many of the champions of schools were graduates of the University of North Carolina.

FREDERICK CARLYLE SHEPARD. An Investigation of the Relation between Physiological and Personality Changes during Adolescence. (Under the direction of A. M. JORDAN.)

Ninety-nine boys and one hundred and thirty girls from Grades VI, VII, and VIII were divided into three successively more mature stages of physiological development on the basis of general agreement among a number of secondary sex characters, Crampton's norms, and the estimate of the medical examiner. These stages were designated Stage I (immature), Stage II (maturing), and Stage III (mature), respectively. Five measures of "personality" were used, namely, Pressey's Interest Attitude Test, Furfey's or Sullivan's Developmental Age Scale, Cowan's Adolescent Personality Schedule, Washburne's Sapich Edition of the

Social Adjustment Inventory, and both parts of Maller's Character Sketches, Form A. Mental ages were taken from the Terman Group Test of Mental Ability and educational ages from the New Stanford Achievement Test.

The following conclusions are drawn from the data assembled:

(1) Inter-correlations between the personality tests indicate that each test is largely unique in whatever factor or function of personality it measured. The fourteen zero order coefficients average about .25, the highest being .59 and the lowest .004.

(2) There is no significant relation between physiological change and personality change revealed by comparing the average scores of subjects in one stage of physiological maturity with those in the next higher stage.

(3) The coefficient of mean square contingency reveals a greater than chance relation between physiological maturity and personality scores for both sexes on each of the five tests. The ten uncorrected contingency coefficients average .29.

(4) There is a reliable relationship between stage of physiological maturity and certain aspects or factors of personality when M. A., C. A., and E. A. have been partialed out. The partial coefficients show a reliable relationship between the Pressey "emotional ages" and physiological maturity for boys and girls in Stages I and II; and for girls in Stages I and II between the composite score on the "Character Sketches" and physiological maturity.

(5) There are other aspects or factors of personality which show no relationship to physiological maturity.

(6) The relationship between physiological maturity and scores on the personality tests shows a curvilinear rather than a straight line relation. This trend is clearly shown in three of the personality tests for girls and two for boys.

(7) There is no evidence from the data to indicate the nature of the personality "traits" that do or do not change with physiological maturity, other than that which can be inferred from inspection of the tests.

(8) Finally, it is proposed to determine by the factor analysis technique what personality factors are present in the five tests, and then to ascertain the relationship of physiological maturity to each of the factors obtained.

The following master's theses were accepted by the Department during the year:

WALTER EUGEN CONRAD, JR. Some Recent Trends In Higher Education. (Under the direction of EDGAR W. KNIGHT.)

This study is concerned with some of the major problems confronting higher education today and some of the plans being tried in order to

reach the most effective solutions. A survey shows that aims and ideals of institutions of higher learning have changed little during the present century, but the methods used to attain these goals have changed immensely.

Three issues are given particular attention: Who shall go to college? What effect has participation in extra-curricular activities upon students? How shall instruction be offered? The last of these questions is the one receiving most attention from college presidents today. The rise of the general college, the graduate approach in the undergraduate school, the granting of more freedom to students, and the emphasis upon guidance of students are evidences of experiments for making instruction more effective.

Among the conclusions reached are: mass education is being questioned; provision must be made for research; present economic and social conditions demand efficiency of education; and real learning must come from interests based upon experience.

HERBERT MCTYEIRE GILBERT. A Study of Reading Ability and Teachers' Marks. (Under the direction of ROY W. MORRISON.)

The study was undertaken to determine the extent to which reading and study abilities, as measured by Iowa Every Pupil Tests, enter into the teachers' judgment of pupils' achievement and readiness for promotion in the sixth and seventh grades of Florence, South Carolina, schools.

Four classes each of sixth and seventh grade pupils were given the Iowa Every Pupil Tests of Silent Reading Comprehension and of Vocabulary and Basic Study Skills. The other information presented was obtained from permanent record cards of pupils.

The results of this study indicate that there is a sufficient degree of relationship between reading ability and teachers' marks to be significant for group administration, but not sufficiently high to be significant for purposes of individual administration and guidance. Some failing pupils scored on basic reading and study skills as high as, or higher than, many promoted pupils. This was further evidence of the unsatisfactory nature of teachers' judgment as a basis for making important decisions on individual pupil cases.

MARCUS LAFAYETTE HAM, JR. A Study of Certain Aspects of Teacher Turnover in North Carolina. (Under the direction of ROY W. MORRISON.)

The purpose of this study was to discover certain facts about teacher turnover in North Carolina which occurs after teachers have accepted contracts for the school year or have begun work.

The scope of the study was the public schools of North Carolina. All information was for the school year 1936-1937 and was secured from

records in the State Department of Education, interviews with selected superintendents, and a questionnaire sent to all superintendents.

It was found that five out of every 100 had to be replaced; the teachers who resigned had less experience and drew less salary than the average of all North Carolina teachers; the leading causes of turnover were acceptance of other school work, entrance into another line of work, and marriage.

It was recommended that: a more effective code of ethics be drawn up; accurate, up-to-date records be kept of resignations; laws be made more specific regarding contracts.

WILLIAM NATHAN REYNOLDS. The Status of the Teaching of Chemistry in the Public White High Schools of North Carolina. (Under the direction of ROBEN J. MAASKE.)

The study was undertaken to determine the rating and size of the high schools in this state which offer chemistry; the general qualifications of chemistry teachers; their in-service activities for professional improvement; their teaching, extra-curricular and administrative loads; the adequacy of laboratory facilities; the teachers' opinions on the relative importance of seven selected factors in the teaching of chemistry; and the suggestions of teachers for the improvement of chemistry teaching.

The data were collected by a survey schedule sent to all high schools in the state offering chemistry, and from the Principals' Final Reports for 1935-1936 and 1936-1937 in the State Department of Public Instruction.

The analysis of the results of the study shows that the North Carolina chemistry teachers are well trained in comparison with those in neighboring states, but that laboratory facilities for this state are inferior to those of the schools of several other states, and that financial handicaps exist which prevent certain of the modern practices in the teaching of chemistry. The study summarizes suggestions of the teachers for improving chemistry teaching and suggests recommendations based on a critical analysis of the data in the study.

LAURENCE WILSON ROSS. The Influence of Southern College Presidents Upon Secondary Education. (Under the direction of EDGAR W. KNIGHT.)

The purpose of this study is to show the influence of the presidents of southern colleges and universities upon the secondary schools of the southern states from about the year 1890. This date marks the approximate beginning of an appreciable influence on the schools by these leaders in higher education, for it was in this period that the regional educational groups were organized with the purpose of providing more effective service for the welfare of the public schools. Working for the

most part through the channels of the Southern Association of Colleges and Secondary Schools, The Conference for Education in the South, the Southern Educational Association, and other allied groups, the college presidents of the southern states have exerted a measure of important leadership in the development of the high schools of the region. Their influential leadership has been especially conspicuous in the development of the idea of public schools supported by taxation, secondary education for the Negroes, the correlation between high school and college instruction, and the curriculum of the high school. Other instances of their influence are cited as well.

ROBERT MCILHENNY UNGER. A Survey of the Organization and Administration of the Schools of Carroll County, Maryland. (Under the direction of WILLIAM J. MCKEE.)

The purpose of this study is: (1) to analyze the present strengths and weaknesses of the administrative and organizational conditions of the school system of Carroll County; (2) to propose improvements for the revealed weaknesses.

This study first undertook to survey the present educational conditions of the county. Criteria of evaluation were developed from the outstanding principles of school organization and administration advocated by leading authorities in these fields. These principles and criteria were chosen on the basis of frequency of mention by these authorities.

The chosen criteria were then applied to the educational data of the various aspects of the school system to discover weaknesses. The suggested improvements were secured from the research and recommendations of recognized authorities.

The survey revealed weaknesses in transportation costs, state aid, salaries, pupil costs, transportation expenses, educational opportunity for Negroes and a rather high percentage of pupil failure.

Carefully documented and tested improvements were secured to meet the revealed weaknesses.

DEPARTMENT OF ENGLISH

GEORGE R. COFFMAN has published:

Review of Edith A. Wright's *The Dissemination of the Liturgical Drama in France. Modern Language Notes,* LIII: 233-235. 1938.

Some Recent Trends in English Literary Scholarship. *Studies in Philology,* XXXV: 500-514. 1938.

He has edited Volume XXXV of *Studies in Philology.*

He has the following research in progress:

A Comprehensive Study of John Gower in Relation to his Contemporaries and as a Representative of Mediaeval Life and Thought.

He is directing the following doctoral dissertations:

W. F. McNEIR. The Elements of English Romance in the Plays of Robert Greene.

E. S. MILLER. Mediaeval Religious Survivals in Early Tudor Drama.

D. W. ROBERTSON. Fourteenth Century English Works of Religious Information and Instruction in Broadly Cultural and in Literary Relationships.

He is directing the following master's thesis:

MARY ALLEN. Philosophical and Other Cultural Elements as Factors in the Narrative Art of the *Canterbury Tales.*

JOHN M. BOOKER has resumed progress on his study of certain social, religious, traditional, and critical currents in the literature of the Victorian era.

He is directing the following research:

GERALD G. GRUBB. Charles Dickens: Journalist (Doctoral dissertation completed.)

FRANCIS P. HULME. The Influence of Dante Gabriel Rossetti on English Poetry. (Progress on doctoral dissertation.)

CHARLES B. KESTLER. The Formation of George Meredith's Philosophic and Critical Ideals and their Influence upon his Art. (Progress on doctoral dissertation.)

HERMAN WITTMEYER. The Influence of Joseph Conrad's Philosophy on his Fiction. (Master's thesis nearing completion.)

GEORGE C. TAYLOR has published:

Notes and Comments on Henry IV, Part 1, Variorum Edition. *Shakespeare Bulletin,* 12: 3. 1937.

The Medieval Element in Shakespeare's Tragedies. *Shakespeare Bulletin,* 12: 4. 1937.

Hermione's Statue Again. *Shakespeare Bulletin,* 13: 3. 1938.

PROFESSOR TAYLOR has the following research in progress: Studies in Shakespeare-Jonson Relations.

He is directing the following doctoral dissertations:

NATHANIEL H. HENRY. Further Studies in Milton's Puritanism.

JAMES HOWELL. The Rogue in Elizabethan Comedy.

A. D. BEACH LANGSTON. Studies in the Renaissance Books of Consolation.

JAMES KESTER SVENDSEN. Studies in Renaissance Science.

The following master's theses are in progress under PROFESSOR TAYLOR'S direction:

ELEANORE LARUE EDWARDS. The Evolution of the Tragic Flaw, with Special Reference to Shakespeare's Chronicle History Plays.

ARABELLA GORE. The History of the Interpretation of Shylock in English and American Literary Criticism, 1796-1935.

JOSEPH THOMAS MCCULLEN, JR. The Dramatic Use of Madness in Shakespeare's Tragedies.

ARTHUR PALMER HUDSON has published:

Useful College English, New York: Thomas Y. Crowell Company. 1938. (In collaboration with E. H. HARTSELL and W. L. WILSON.)

The Perennial Problem of the Ill-Prepared. *Educational Notes by the Faculty of the University of North Carolina,* November, 1937.

Freshman English Placement at Carolina in 1937. *High School Journal,* 20: 289-296. December, 1937.

"Excelsior": A Letter to Miss Bickley's Class. *High School Journal,* 21: 80-91, 114. March, 1938.

The Folksong. *South Atlantic Bulletin,* 3 (February, 1938), p. 6.

A survey of folksong research in the South during 1937, prepared by PROFESSOR HUDSON as chairman of the Folksong Section of the South Atlantic Modern Language Association.

A review of Benjamin A. Botkin's *The American Play-Party Song, with a Collection of Oklahoma Texts,* Lincoln: Univer-

sity of Nebraska Press, 1937. *Southern Folklore Quarterly,* 1: 69-70. December, 1937.

A review of Mellinger E. Henry's *Folk-Songs from the Southern Highlands,* New York: J. J. Augustin, 1938. *Southern Folklore Quarterly,* 2: 175-177. September, 1938.

To Shake Hands with Death. *Modern Language Notes,* 53: 510-513. November, 1938.

PROFESSOR HUDSON has in press:

The Perennial Problem of the Ill-Prepared. To appear in *The English Journal,* College Edition (Chicago: The University of Chicago Press).

He has had accepted for publication:

Folk-Lore, American. An article, to appear in *Dictionary of American History,* ed. James Truslow Adams, New York: Charles Scribner's Sons.

Folk Song, American. An article, to appear in the same.

He gave the following papers during 1937:

Some Tall Tales from North Carolina. At the Bull's Head, Chapel Hill; the Library, the Woman's College of the University of North Carolina; to the Language and Literature Club of the University of Florida.

Some Curious Negro Names. To the Southeastern Folklore Society, at its annual meeting.

PROFESSOR HUDSON has directed the following research:

EARL H. HARTSELL. Wordsworth's Ideas of Duty and Recompense as Related to His Interest in Vocations. (Doctoral disseration.)

KARL G. PFEIFFER. Contemporaneous British and American Critical Opinions of Walter Savage Landor. (Doctoral dissertation.)

A. C. HOWELL, with W. S. JENKINS and W. A. OLSEN, prepared and issued in mimeographed form "Faculty Digest of Legislation, 1920-1938," a 25-page index and summary of all important legislation, made by the General Faculty or any of its units, which affects either the faculty or the students of

the University. The work is being continued by supplements whenever necessary.

PROFESSOR HOWELL is engaged in a study of Sir Thomas Browne as a Humorist and Wit.

He is directing the following doctoral dissertations:

EUNICE MACKAYE. Francis Bacon as a Historian.

DESMOND BOOTH. The Plague as an Influence on English Literature.

DOUGALD MACMILLAN has published:

Drury Lane Calendar, 1747-1776, compiled from the playbills and edited with an introduction. Oxford: The Clarendon Press (in co-operation with the Huntington Library), 1938. Pp. xxxiv, 364.

This compilation consists of a record of performances at the Theatre Royal in Drury Lane during the time that David Garrick was one of the managers of the theatre. It is based chiefly upon the Kemble-Devonshire Collection of Playbills in the Huntington Library. The Introduction is a sketch of Garrick's managership of Drury Lane.

A review of E. M. Gagey, *Ballad Opera,* New York: Columbia University Press, 1937. *Modern Language Notes,* LIII 1937: 297-299. 1937.

He is directing the following doctoral dissertations:

D. A. BROWN. George Crabbe as a Satirist.

G. H. FOSTER. History Plays in England, 1660-1800.

MARY C. RANDOLPH. The Neo-Classic Theory of Satire.

D. J. RULFS. The Minor Elizabethan Dramatists on the London Stage from 1776 to 1833.

H. W. SAMS. The Background of Bishop Joseph Butler's Idea of Conscience.

L. DELONG WALLACE. Studies in the Text of Buckingham's *The Rehearsal.*

ROBERT M. WALLACE. Henry Fielding's Narrative Technique.

ESTON EVERETT ERICSON has published:

An Eighteenth Century Lincoln Story. *Journal of the Illinois State Historical Society,* 31: 105-106. 1938.

A Ruskin Allusion. *Englische Studien,* 72: 318-319. 1938.

Bullock sterteth, bucke verteth. *Modern Language Notes,* 43: 112-113. 1938.

The Greek Language as an Aid to English. *The Ahepa Magazine,* July-August, 1938.

In *American Speech:*

A Distorted Japanese Word, 11: 371-372. 1936; British *eat* and American *ate,* 12: 322. 1937; *Moron*—a Misconception, 12: 323. 1937; *Proof*—its Meaning, 12: 321-322. 1937.

In *Folk Lore:*

Burial at the Cross-Roads, 47: 374-375. 1936; Nebraska Folk-lore and Popular Sayings, 49: 148-154. 1938; Mad-stones in North Carolina, 49: 165-166. 1938; Folk-lore of Southern United States, 49: 167. 1938.

In *Beiblatt zur Anglia:*

A Scotch Dialect Contraction, 47: 346. 1936; King's Ex, 49: 87. 1938; Assumed Singulars and Plurals, 49: 317. 1938.

Short Notes in *Notes and Queries* for 1937 and 1938 (Language and Literature):

Notes on the American Language, 172: 235-236; The Sources of "John Inglesant," 173: 376; "The Fire's Out, Too," 173: 388; Phrenology, Distinguished Believers, 173: 393; Elizabeth's Essex in Literature, 173: 393; The Eating of Horseflesh, 173: 393; The Herder of Sheep in America, 173: 405; Black Belt, 173: 424; Bound to, 174: 152; Cole slaw; cold slaw, 174: 85; Oratorical Flapdoodle, 174: 278.

PROFESSOR ERICSON has had accepted for publication:

Observations on New English Syntax. *Anglia.*

PROFESSOR ERICSON has the following research in progress:

A History of the English Language. (This is to be a textbook for use by graduates and advanced undergraduates.)

A Bibliography of the Writings on Old English Literature. (With KEMP MALONE and STEFAN EINARSSON of the Johns Hopkins University). This work will include every piece of criticism, translation, or editing that touches Old English

literature. It is being done under the auspices of the Rockefeller Foundation for Research in the Humanities.

A Bibliography of Homage Volumes. (With URBAN T. HOLMES.) This will cover all the writings scattered throughout honorary volumes that deal with Indo-European language and culture. Over one hundred such volumes have been examined.

PROFESSOR ERICSON has continued his studies in American dialect, principally by way of a study of old Southern newspapers in the library. Some of this material has been submitted to the Historical Dictionary of American English being compiled in Chicago under the editorship of SIR WILLIAM CRAIGIE and PROFESSOR M. M. MATTHEWS.

The following theses and dissertations have been undertaken under PROFESSOR ERICSON'S direction:

DOROTHY FORD. A Study of Biblical Diction in the Middle English Period. (For the master's degree.)

WALTER MOSES. The Language and Style of Thomas Fuller. (For the doctor's degree.)

W. L. WILSON. A Comprehensive Study of North Carolina Dialect. (For the doctor's degree.)

RAYMOND ADAMS has published:

Review of *The Works of Thoreau,* H. S. Canby, editor, and *Walden and Other Writings of Thoreau,* Brooks Atkinson, editor. *The New England Quarterly,* XI: 642-644. 1938.

PROFESSOR ADAMS has completed:

American Transcendentalists. New York: American Book Company (In Press). A book of readings in the "American Writers Series."

Carolina Microcosm, *The Christian Leader,* CXX: 589-590. May 7, 1938.

He is directing the following research:

BROADUS F. FARRAR. The Critical Writings of John Burroughs (Doctoral dissertation).

JOE HORRELL. A Critical Study of the Writings of William

Dean Howells as They Relate to His Life and Times (Doctoral dissertation).

JOHN BYRON WILSON. Transcendental Attitudes toward Learning (Doctoral dissertation).

RICHMOND P. BOND spent the academic year of 1937-1938 on a Kenan leave of absence, with a Sterling Research Fellowship, at Yale University.

PROFESSOR BOND has published:

English Literature, 1660-1800: A Current Bibliography. *Philological Quarterly,* XVII: 146-215. 1938.

He was appointed an Advisory Editor of the *Philological Quarterly.*

PROFESSOR BOND has in progress studies of Joseph Addison, early English periodicals, and Colonial relations in the age of Queen Anne.

He is directing the following doctoral dissertations:

MAURICE A. MOORE. Eulogy and Satire in English Political Poetry, 1714-1760.

ELFORD C. MORGAN. The Political Career of Joseph Addison.

ROBERT B. SHARPE read a paper, The Influence of the Admiral's Company as a Producing Organization upon the Drama, before Section English XIV: English Drama, at the December, 1937 meeting of the Modern Language Association of America in Chicago.

PROFESSOR SHARPE has published:

A Contest Judge Notices These Things. *The Carolina Stage,* III: 11: 11. February, 1938.

He is directing the following research:

GILBERT OHLMANN. A Critical Edition of Porter's *Two Angry Women of Abington.* (Doctoral dissertation.)

ELIZABETH FISHER. The Countess of Pembroke and her Literary Coterie. (Master's thesis.)

LOUISE M. MORTON. Shakespeare's Changing Attitude towards History and the Chronicles. (Master's thesis.)

CLAUDE SEAWRIGHT. A Study of Massinger's Exposition. (Master's thesis.)

JEAN BRABHAM. The Technique of Alternation between Comedy and Tragedy in Shakespeare and Shaw. (Master's thesis in the Department of Dramatic Art.)

H. K. RUSSELL has published:

Theses in English and Modern Foreign Languages Accepted in the Colleges of North Carolina, South Carolina, Georgia, Florida, and Alabama, 1917-1937. *South Atlantic Bulletin,* IV: 1s: 2-15. April, 1938. He is assistant editor of the *South Atlantic Bulletin.*

WILLIAM WELLS has published:

(In collaboration with HARDIN CRAIG and DAVID PATRICK) Recent Literature of the English Renaissance. *Studies in Philology,* XXXV: 279-403. 1938.

He is continuing his study of John Dee, the sixteenth century mathematician and astrologer, and is at work on the proposed extended Renaissance Bibliography for 1939, to appear in *Studies in Philology.*

The following doctoral dissertations were accepted during the year by the Department:

MARY HOWELL ELIASON. A Study of Some Relations between Literature and History in the Third Estate of the Fourteenth Century: Chaucer, *Piers the Plowman,* and the English Mystery Cycles. (Under the direction of GEORGE RALEIGH COFFMAN.)

This study is an attempt to contribute to an understanding of the place of the third estate in a portion of the vernacular literature of fourteenth century England. Although an extensive examination of the body of fourteenth century English literature proves that the members of the third estate were quite often treated cursorily or mentioned only casually, it has long been known that England boasts some literary documents which in their treatment of the third estate are amazing and unique. An examination of *The Canterbury Tales, The Vision of Piers the Plowman,* and the cyclic plays of York, Towneley, Chester, and the *Ludus Coventriae* shows us the people of the third estate as vigorous human beings. This poetry makes up the literary documents which are the basis of the thesis. In addition certain pertinent historical documents have been used. The contrast and the similarity between the members of the

third estate as they are found in the literature and in the records are clearly discernible when extracts from both are placed side by side. By putting the ploughman from the records with the ploughmen from the literature, a more complete understanding of the mediaeval workman is secured.

In the second chapter it is shown that the third estate had been increasingly in contact with the ideals which extolled the virtuous heart and proclaimed that a man was known by his deeds and not by his wealth and noble birth. The first half of the chapter attempts to make clear the possible sources and the prevalence of these ideals; the second half considers the idea in the literature of the fourteenth century with particular reference to *The Canterbury Tales* and *Piers the Plowman.*

The villeins and the lawyers are two groups which illustrate well the two extremes in the third estate while at the same time they serve to show something of the way in which the ideals worked in actual life. The lawyer had achieved learning, wealth, and power; the villein was endeavoring to achieve the same things. In order to do so he must first rid himself of servile restrictions. Thus we find him appearing in court in an attempt to free himself or to establish a freedom he was already enjoying.

In the chapter on the manor we see very little of the downtrodden peasant mainly because he was not vigorous enough to play the parts of the seven deadly sins or to hold his own among men in the field full of folk in a fashion to satisfy the demands of a sturdy art. Cain among the ploughmen was vigorously human and a great sinner. The shepherds were anything but downtrodden; they spoke their minds and conducted their affairs with extraordinary firmness. And so did the carter, the smith, the hayward, the miller, the reeve, and the forester.

Among the people of the towns, drawn for the most part from the country, life was equally vigorous. A middle class was growing up within which it is not difficult to see the bourgeois qualities dear to the satirist and the realist. The apprentice who behaved himself succeeded; his dissolute companion failed. The merchant, knowing that his money was his plough and speaking sententiously of thrift and honesty, took care that the world should not know his worries and his debts. The apprentice and the merchant are found in both the literature and the records. The mass of tradesmen who were stepping on the heels of the merchants must be interpreted more fully through the records than the literature. They, too, display in their independence the characteristics of the rising middle class. The apprentice, the tradesman, the merchant all show a human exuberance and pride characteristic of a living urban organization. In them and in their companions on the manor a new world is mirrored, a world to be seen clearly in *The Canterbury Tales, The Vision of Piers the Plowman,* and the Mystery Cycles.

GEORGE FREDERICK HORNER. A History of American Humor to 1765. (Under the direction of GREGORY L. PAINE.)

Against a description of later American Humor derived from previous criticism, the study examines the comic materials in the histories, journals, pamphlets, sermons, poetry, and periodicals of colonial times to discover how early characteristic traits appeared.

In the earliest period (1607-1685), the point of view being basically provincial, laughter rose from the incongruous comparison of life in the old and new worlds, in the defense of the new settlements against detractors, and in internal conflicts. The writings of Ward, Folger, Tompson, and others early exhibited, with the more conventional traits, the brutality, vulgarity, extravagance, whimsical *non sequitur*, and the fondness for tall tales and folk saws of later American Humor. The comic Indian and the comic Yankee, named Brother Jonathan, were envisioned; and Ward made partial use of the mask of homespun philosopher.

In the second period (1685-1720), the point of view became increasingly practical, secular, and colonial. Laughter rose from the conflicts between urban and rural life, between liberal and conservative opinions, between religious and secular attitudes, and between sectional differences. The characteristic methods of the earlier period were continued, and new ones added, Cotton Mather introducing the apologue, Cook exploiting Hudibrastic verse, Lawson foreshadowing the comic travel book, and Madam Knight recording rural life and dialect. The comic Southerner, "lubber," and Quaker were added to the gallery of American caricatures.

In the third period (1720-1765), co-existent with the more urbane, belletristic, and imitative comic media was the increasingly skillful use of the more characteristic methods. Middle-class standards of taste and conduct became the measure of the comic, and the mood of laughter remained genial until embittered by the approaching Revolution. To the gallery of caricatures were added the Negro, Jew, Irishman, German, and Dutchman. Prominent contributors to the comic expansion were Byrd, Byles, Green, Livingston, Hamilton, Evans, the Ames's, the *Courant* writers, and Franklin. Newspapers, magazines, and almanacs popularized varieties of "newspaper wit." The *New England Courant* introduced the Addisonian essay, fitted it to lower middle-class taste, and enabled Benjamin Franklin to experiment with the mask of humble philosopher. In the *Pennsylvania Gazette* and *Poor Richard's Almanack*, in the satires and bagatelles, Franklin made skillful use of the purposive anecdote, irony, parody, hoax, tall tale, vulgarity, nonsense, cacography, and the labored statement of the obvious. His major contribution was the character of Poor Richard, a character who became the model for all subsequent "cracker-box philosophers."

Colonial comic literature contributed to the development of American Humor by exploiting folk laughter, by appealing to a democratic audience, by maintaining a practical attitude, by utilizing gross exaggeration, burlesque, comic aphorism, hoax, scatologic allusion, tall tale,

squib, practical joke, and purposive comic anecdote, by foreshadowing the comic travel book, by developing the basic traits of the comic Yankee, Southerner, Indian, and "lubber," by suggesting the comic character of the Irishman, Negro, Jew, and German, by expressing itself in the low, colloquial style, and finally, its greatest contribution, by devising the comic mask of the "cracker-box philosopher."

JOHN WALKER MCCAIN, JR. Certain Aspects of John Heywood's Vocabulary in Relation to His Cultural Interests. (Under the direction of ESTON EVERETT ERICSON and GEORGE RALEIGH COFFMAN.)

Chapter I shows Heywood to have been definitely concerned with many important religious, political, social, and economic changes of the age. It presents five manuscript discoveries, throwing new light on Heywood's activities in the City, and the status of his financial affairs after he went into exile.

Chapter II gives a fresh survey of the development of the English vocabulary from Caxton to the end of Heywood's literary career (1562). The principal factors affecting the growth of the vocabulary are discussed in their complex relationships, pointing directly towards Heywood's own cultural heritage wherever feasible.

Chapter III provides a critical view of the limitations of available dictionaries with reference to this study, and gives an alphabetical list of 866 words (with etymology, definition, quotation, and definitive references for each) selected because of their linguistic significance from *Wit and Folly*, *Love*, *Wether*, *The Foure PP*, *The Spider and the Flie*, and Heywood's minor poems.

Chapter IV indicates that Heywood introduced 133 new words into English, analyzes the processes involved in bringing them into use, and traces their subsequent history. These words include twenty-two for which there is no dated use recorded in any English dictionary. This chapter also defines 210 new functional uses and meanings which Heywood apparently developed for English words, and explains the later history of these uses and meanings. In addition to these 343 neologisms, further evidence of Heywood's interest in words is provided by eighty-seven words and 202 meanings employed by only one writer before Heywood; by 104 words and 107 meanings with recorded uses by only two earlier writers; by a record of Heywood's revival of sixty-one archaisms, including eleven Chaucerianisms, and if his use of obsolete and obsolescent words.

Chapter V discloses new information about Heywood's *Belesenheit;* his knowledge and use of foreign languages, formal rhetoric, and oratory, classical mythology, medicine, law, rural themes, war and military terms, and the sea; his acquaintance with twenty-eight contemporary crafts, trades, and professions; and his interest in and experience with guilds, sports, music, and religion.

Chapter VI marshals a number of facts which have a bearing on questions of the authorship of *The Foure PP, The Pardoner and the Frere,* and *Tyb,* with a considerable amount of new evidence which lends weight to Professor Arthur W. Reed's suggestion that this trilogy shows the marks of the active participation in authorship by Sir Thomas More.

Chapter VII is a summary of the significant findings.

Appendix A consists of a supplementary sketch of contemporary legal conditions and agrarian problems, fuller than was desirable in the body of a closely-knit thesis.

Appendix B is a transcript of two letters from members of the staff of the Army Medical Library in Washington, about medical terms in *The Foure PP.*

Appendix C is a detailed consideration of the apparent literary relations between John Heywood's *The Spider and the Flie* and Jonathan Swift's *The Battle of the Books.*

CHARLES LEONARD PITTMAN. A Study of Changes in Wordsworth's Conception of the Relationship of Poetry and Science. (Under the direction of A. P. HUDSON.)

The present chronological study of Wordsworth's relation to the scientific movement of his day sets in a new light his changing conceptions and interests and thus affords a point of view and data for a re-interpretation of an important aspect of his critical theories and poetic practice.

A careful examination of his life and work before 1795 has revealed that the young Wordsworth was greatly interested in geometry and the higher mathematics during his college days and the years immediately following his graduation; that he could hardly have graduated from the Cambridge of that day without some degree of proficiency in the philosophy of Newton, in mathematics, and its related subjects; that the study of abstract science afforded him an escape from Godwinism; that his temporary subjection to Godwin's rationalism led him to a growing consciousness of certain shortcomings in other branches of science; that the poet as a young man made no adverse criticism of contemporary science; that he formulated no theory concerning the relation of poetry to science before 1800; but that the early period, though implanting little evidence of the scientific element in his poetic compositions, is important because the seeds of his later scientific and philosophical interests were sown before 1795.

It has been shown, moreover, that, despite certain apparently contradictory and inconsistent pronouncements, he faced squarely and bravely the current issues of scientific inquiry in the second period of his life, 1795 to 1814, accepting some and rejecting others, eager at all times to keep himself informed as to the latest developments in science and philosophy. In this endeavor he found a willing guide in Coleridge. The Wordsworth of the great poems has been revealed as one who undertook

seriously a study of science in 1798, who was in constant communication with Sir Humphrey Davy and other members of the Pneumatic Institute for several years after 1799, who purchased books and apparatus for the study of chemistry and botany in 1801, who read widely in science and philosophy after his removal to Racedown, who turned to the thought of Newton as a solution to the difficulties encountered in the working out of his philosophical system, who formulated about 1800 a definite theory concerning the relationship between poetry and science, who condemned severely all scientific activity that gives no place to an imaginative interpretation of the universe, but who penned many noble tributes to the scientific endeavors that were not actuated by materialistic motives, and who employed scientific allusions and figures of speech in ever-increasing numbers but refrained for the most part from the writing of true scientific poetry.

Although the final period of Wordsworth's life has been studied by various scholars, it has never before been shown that the years between 1814 and 1850 are marked by still further and more radical changes in his attitude toward science and its relation to poetry, changes that were due in no small measure to the influence of Sir William Rowan Hamilton. In this young Irish astronomer, with whom he was closely associated from 1827 to his death in 1850, he recognized the very qualities that he had admired and praised in Newton and that he had sought for in vain among his scientific friends after 1795. More important, however, is the fact that the chief bond of affection between Wordsworth and Hamilton was their common interest in the subject of the relation of poetry to science. In all the records of their conversations and correspondence that have been preserved this subject was from first to last the only motive of their association other than their mutual interest in Newton and higher mathematics. Evidence has been presented to show that under Hamilton's influence the poet was led to the conviction that the time had come when science and poetry could be successfully united, that he went back to the unpublished *Prelude* and either altered or deleted certain severe strictures on science, that he continued to praise those scientists who admitted the spiritual elements into their work but had much less to say of those who failed to measure up to his requirements, that the scientific element is far more prominent in his late poetry than in that of either of the earlier periods, and that the prevalence of this scientific element in the verse of his late years may be at least one explanation of his poetic decline.

MARTIN STAPLES SHOCKLEY. A History of the Theatre in Richmond, Virginia, 1819-1838. (Under the direction of GREGORY L. PAINE.)

After the burning of the Richmond Theatre in 1811, eight years elapsed before the opening of another theatre in Richmond. This dissertation begins with the opening of the Theatre on June 11, 1819; it ends with the opening of the Marshall Theatre on November 14, 1838.

It consists of a brief survey, followed by four studies of particular phases of theatrical activity and interests, and a summary of findings and conclusions. Supplementary material is contained in four appendices. The principal sources of information are files of Richmond newspapers in the Virginia State Library in Richmond.

Records indicate that there were thirty seasons by professional acting companies, in three clearly defined cycles. The first extends from the opening to the last performance of the Caldwell Company on November 27, 1824. The Theatre was then closed for three years, and reopened on November 28, 1827. There was considerable theatrical activity during the next four years, declining after 1831. The third cycle consists of the performances of the Preston Company from December 7, 1836, to April 24, 1838.

According to contemporary accounts, the Theatre was a handsome building seating approximately one thousand persons. It was financed by the sale of two hundred shares of stock at two hundred dollars each to 104 stockholders. Remembrance of the disastrous theatre fire of 1811 caused some opposition to the Theatre, and the Richmond pulpit was outspoken in its condemnation. The press, however, was uniformly favorable, and many defenses of the theatre and the drama were published. There were many evidences of pleasant relations between players and people of the community. The Theatre's most serious competitor was the Amphitheatre, a circus which added melodramas and farces to the sports of the ring. Contemporary newspapers often mentioned large attendance at the Theatre, especially for popular plays and favorite stars. The audience included the first families of Virginia, legislators, governors, and on one occasion two ex-presidents. Negroes in the gallery were sometimes boisterous. Interest in the theatre is attested by amateur theatrical groups, and by the appearance of local amateurs with the professional companies. Several Richmond playwrights produced their plays in the Theatre.

There are records of ten different professional acting companies in the Theatre, the most important being the Gilfert Company, which contained some of the best actors in America. The most famous stars of the American stage appeared in Richmond during these years. Lucius Junius Booth made his American debut in Richmond on July 6, 1821. Although some of the players were Americans, the Richmond stage during this period was dominated by English talent.

The Theatre program included acrobatics, dancing, music, and many different types of plays. More than eight hundred performances and more than three hundred different plays are recorded. Nearly a hundred English playwrights were represented. Shakespearean tragedies were the most popular tragedies, but Shakespearean comedies were comparatively neglected. *The Taming of the Shrew*, *Richard III*, and *King Lear* were presented in Garrick's, Cibber's, and Tate's adaptations. There were many adaptations from French and German sources by both English and American playwrights. Of thirty-nine plays by known American

authors, sixteen employed native American material. Three previously unknown American playwrights had their plays produced in the Theatre. Eight plays of known American authorship were first acted in the Theatre. Nine plays by contemporary English playwrights had their first American performances in the Theatre. The two plays most frequently acted were *Richard III* and *The Spoiled Child.* The Richmond repertory was very similar to repertories in contemporary American theatres.

Approximately two hundred pieces of theatrical criticism are preserved in the Richmond newspapers from this period. Most of this criticism shows little or no merit, but as a whole it indicates an active interest in the theatre, the drama, and the art of criticism. There is no conscious demand for a native American drama. Although direct individual influence cannot be traced, the criticism as a whole reflects typical eighteenth century English critical ideas. The dominant ideas are that the stage should be true to nature and that the theatre should exert a strong moral influence.

The following master's theses were accepted during the year by the Department:

JULIA MELBA ALLEY. Topical Allusions in the Savoy Operas. (Under the direction of DOUGALD MACMILLAN.)

The purpose of this study is to present the results of a careful examination of the Savoy Opera librettos from the point of view of topical allusions. *Punch* has been used as a general guide to the satiric references to persons, events, and conditions. On the whole the Savoy Operas and *Punch* attack the same foibles, and, since *Punch* is regarded as the interpreter of enlightened middle-class opinion, the Savoy Operas are found to present a picture of Victorian England from this point of view. In order to pave the way for the topical allusions the original portions of the study are introduced by a survey based on secondary sources of comic opera from the time of *The Beggar's Opera* to the first of the Savoy Operas, *Trial by Jury,* showing that ballad opera, pantomime, and comic opera had, from the beginning, a general tendency toward abundant use of topical allusions.

WARREN BENJAMIN BEZANSON. A Study of Thomas Morton's *New English Canaan.* (Under the direction of GREGORY L. PAINE.)

The first chapter is a narration of the life of Thomas Morton, who settled at Merrymount, now Quincy, Massachusetts, in 1625, and was twice deported by his Pilgrim and Puritan neighbors for economic and social reasons. In England, after 1632, he tried by legal action to oust the Puritan government of Massachusetts. He died in Maine in 1646.

The second chapter is a discussion of Morton's purposes in writing the *New English Canaan,* and of the evidence for determining the dates

of composition and publication of the book. Written to praise New England, the book was also intended as propaganda against the Puritans. It was probably completed in 1634, and was published in Amsterdam in 1637.

In the third chapter the text of the *New English Canaan* is analyzed. The book is divided into three parts, of which the first is a description of the Indians, and the second of the natural resources of the country. The third section is a record of the author's experiences in New England.

In the fourth chapter the literary influence of Morton's book is indicated, and analogues to episodes in the *New English Canaan* are pointed out.

The fifth chapter is a summary of the significance and importance of the *New English Canaan.* Morton's book is chiefly valuable for its idealistic, and frequently exaggerated, descriptions of the Indians and of the natural resources of New England, and for its satire on the New England Puritans.

CLYDE DEANS. The Function of the Songs in Elizabethan Pastoral Romances. (Under the direction of W. F. THRALL.)

This study of five of the Elizabethan pastoral romances by Sidney, Lodge, Greene, and Dickenson proves that the songs embodied in the romances are highly organic in nature and serve an important purpose in the development of the romance. Eight out of ten of the songs have a plot function. Approximately seven out of ten songs aid in characterization. About six out of ten serve to sustain pastoral atmosphere. Nearly eight out of ten serve more than one purpose.

Of the authors studied, Lodge seems to handle his songs most skillfully, since nine out of ten of his songs have more than one function. Of the songs of Dickenson, who shows the least skill, only three out of ten have multiple functions. Of Greene's songs, nearly nine out of ten have more than one function, while of Sidney's, over seven out of ten serve more than one purpose.

MARY ETHEL DICHMANN. Linguistic Interests in the *Gentleman's Magazine,* 1731-1800. (Under the direction of E. E. ERICSON.)

The *Gentleman's Magazine* serves as a barometer of public opinion for the eighteenth century, indicating the interests of the ordinary man of literary inclinations. It is, therefore, an excellent place in which to check the linguistic interests of the century that first awoke to an enthusiasm for philology. The correspondents contributed letters on every phase of linguistics that caught the attention of the important men in the field—such men as Horne Tooke, Lord Monboddo, Lowth, and Harris; there are discussions of the origins of language, its mutability, the primitive tongue, the possibility for a universal language, comparative linguistics,

methods of standardizing English, Old and Middle English, and etymology. The eighteenth century did "fix" the grammar, but most of the attempts to trace the history of language and explain the etymology of words are inaccurate; nevertheless they led the way to the scientific studies of the nineteenth century.

ELEANOR SANDERS LANE. Byron and The Fine Arts: Music, Architecture, Painting, and Sculpture. (Under the direction of A. P. HUDSON.)

Byron's critics and biographers and Byron himself have offered ample proof that he knew nothing of the technicalities of the fine arts. They have agreed, however, that music, architecture, painting, and sculpture made a deep impression on him, yet have not discussed the purpose for which he employed these arts. Byron used the arts mainly to create the proper mood and atmosphere in his poems. He believed that music has universal appeal, and can best express change of mood because reading about music and musical instruments awakens the same feeling in the reader that he has when he hears the instruments played. Byron's tragic heroes usually live in Gothic castles. This setting adds heaviness and gloom to their tragedies. Crumbling buildings are used to contrast the past and the present. In referring to painting and sculpture, Byron mentions artists and their productions more than music and architecture, but usually to create a specific mood. One of the most interesting exhibitions of his interest in music occurs in those passages in his poetry and letters in which he satirizes music and musicians, especially opera and opera singers.

JOHN ALLEN MORRIS. The Stories of William Gilmore Simms. (Under the direction of GREGORY L. PAINE.)

Before 1870 William Gilmore Simms published at least fifty-eight stories, most of which were printed first in periodicals and later in seven book collections. A pioneer story-writer, Simms made a genuine contribution to American literature in his Indian, Negro, and frontier stories. He was probably the first to use Negroes as convincing literary characters in American short stories. The Gullah dialect in his Negro stories is almost scientifically accurate. His Indian, frontier, and humorous stories, and his stories of American life, contain excellent portraits of southern people, especially in his lower-class characters. He revised and improved his early stories before republishing them. Graphic realism, exciting adventure, excellent nature descriptions, and satisfactory characterization make his best stories eminently readable. His work in the field of the short story—far greater than is commonly known—when properly studied and publicized should entitle him to a high rank as a pioneer American story-writer.

MARIE MORGAN PETTIGREW. A Study of Edwin Arlington Robinson's Arthurian Poems. (Under the direction of GREGORY L. PAINE.)

Edwin Arlington Robinson wrote three long narrative poetic treatments of the Arthurian legend, namely, "Merlin," "Lancelot," and "Tristram." The purpose of this study is twofold: first, to determine, wherever possible, Robinson's probable source materials for the poems, and to examine his handling of these sources; and, second, to make a study of the poet's shift from action to psychology.

A close analysis of the poems reveals, first, that Robinson exercised a great deal of independence in his choice and employment of sources; second, that he was concerned, not with legendary verity, but rather with psychological verity; and third, that his contribution to the furtherance of the Arthurian legends was his supplying of the thought and feeling behind the deeds sung by the old romancers, and his engraftation of twentieth-century philosophy and notions upon the original stock supplied him by the legends.

DEPARTMENT OF GEOLOGY

WILLIAM F. PROUTY (with H. W. STRALEY and assistants) has published:

Further Studies of "Carolina Bays" *Bulletin of Abstracts of The Geological Society of America,* 50th Annual Meeting, December, 1937.

WILLIAM F. PROUTY has prepared for publication:

Review of Geophysical Work of Department of Geology, University of North Carolina. To be published in National Academy of Science, *Transactions of Geophysical Union* for 1938.

The Silurian of Eastern Tennessee. To be published in Monograph of the Silurian of United States by National Research Council.

WILLIAM F. PROUTY has in preparation:

Characteristics and Origin of the "Carolina Bays".

Foundation Structures at Hiwassee Dam Site, Tennessee.

WILLIAM F. PROUTY is supervising the following research:

J. R. CLAIR. Oil and Gas resources in Cass County, Missouri.

R. J. MARTIN. Geology of the Spodumene Deposits of the Kings Mountain-Gaffney Area of North and South Carolina.

L. D. BURLING has secured considerable additional material pertinent to his investigation of group phenomena.

He also worked, both in the laboratory and in the field, in the application of a statistical method to the radiations involved in a new method of subsurface geological exploration.

L. D. BURLING is supervising the following research:

W. RAY JOHNSON. Geomagnetics of the northeast North Carolina Coastal Plain.

JOHN W. HUDDLE has the following studies in progress:

Description of the Chattanooga Shale Conodonts.

A Study of the Micro-structure of the Order Conodonta.

Description of the Pleistocene Foraminifera of North and South Carolina (with J. R. CLAIR).

JOHN W. HUDDLE is supervising the following research:

R. O. BLOOMER. Stratigraphy and Petrography of a quadrangle along the eastern border of the Valley and Ridge Province in Virginia.

HOWARD VITZ. Upper Silurian Ostracods of the Southern Appalachians, and the Cretaceous Ostracods of North Carolina.

FRANKLIN C. ERICKSON has published:

Transhumance in the Land Economy of Schächenthal. *Economic Geography,* 14: 1: 38-46. 1938.

FRANKLIN C. ERICKSON has the following studies in progress:

Background to the Land Utilization of the University Lake Drainage area.

He has prepared the cartography for a textbook on Political Geography, written by SAMUEL VAN VALKENBURG, to be published very shortly by Prentice Hall.

SAMUEL T. EMORY has the following studies in progress:

A Geographic Interpretation of Bright Tobacco Production in North Carolina. (To be submitted as a doctoral disserta-

tion to the Department of Geography at the University of Chicago.)

WILLIAM H. IRWIN has the following studies in progress:

Investigation of the structure and petrology of the Columbia River basalts in the vicinity of the Grand Coulee Dam, Washington.

Survey of the tectonic history of northeastern Washington, northern Idaho, and northwestern Montana.

H. W. STRALEY has published:

Adjustments in Small Scale Nonconcentric Folding. *Bulletin of the Geological Society of America,* Vol. 49: 1938.

Geophysical Work in Franklin County, North Carolina. *North Carolina Academy of Science,* May, 1938, (with W. R. JOHNSON, JR.).

H. W. STRALEY has completed for presentation at Christmas meetings:

Progress Report on Geomagnetic Reconnaisance in the Southern Appalachians.

Geomagnetic Detail of Giles County, Virginia. Will appear as a bulletin of the Virginia Geological Survey.

Progress Report on Geomagnetic Reconnaisance on the Coastal Plain of the Carolinas (with G. R. MCCARTHY).

Tracing Pegmatite Dikes Geophysically. Commercial Pegmatite Tracing by Geophysics (with W. R. JOHNSON, JR.)

W. R. JOHNSON, JR. has completed for presentation at Christmas meetings:

Progress Report on Geomagnetic Reconnaisance in Northeastern North Carolina.

The following doctoral dissertations have been accepted by the Department during the year:

RICHARD ARCHER EDWARDS. Yorktown and Duplin Ostracoda of North Carolina and Virginia. (Under the direction of J. W. HUDDLE.)

This dissertation contains taxonomic criteria and descriptions of twenty-nine genera, ninety-four species, and three varieties of Ostracoda from the Yorktown and Duplin formations of the Miocene of North Carolina and Virginia. Of this number three genera, seventy-six species, and three varieties are new.

H. W. STRALEY, III. Some Geomagnetic Traverses in the Appalachian Mountains. (Under the direction of W. F. PROUTY and L. D. BURLING.)

Gravitational and magnetic field work in the Appalachian region indicates the probability that the major anticlines are not cored with igneous and/or crystalline metamorphic rocks of high density or magnetic permeability. Experimental studies suggest that the anticlines west of the Blue Ridge fault are localized over thrust fault blocks of sedimentary rock that have suffered fragmentation.

The above theoretical considerations indicate the possibility that the basement rocks have suffered only two major failures in the region studied: the first along the Blue Ridge fault, and the second along the Appalachian structural front. It has been suggested that the Blue Ridge fault block acted as a plunger before which the paleozoic sedimentary rocks were folded and faulted as they were pushed westward toward the edge of the Appalachian wedge.

WILLIAM ALEXANDER WHITE. The Mineralogy of Desert Sands. (Under the direction of WILLIAM F. PROUTY.)

Thirty-three samples of sand were studied from the following desert areas: Libyan, Central Australian, Kalahari, Rajputana, Mojave, Escalante, Red Desert of Wyoming, and Kanab, Utah. Heavy fractions were separated with bromoform. Approximate frequency and micro-characters of all species were tabulated. Detrital calcite was found to be diagnostic of sands deposited in arid environments, as was, to a less extent, apatite. Apatite is largely limited to sands from small desert areas. It is removed from those of large areas by the extreme attrition of aeolian transportation. By the same process the number of species present diminishes with increasing size of the desert. Desert sands are not found to be appreciably arkosic.

The following master's thesis has been accepted by the Department during the year:

WILSON M. LAIRD. The Stratigraphy and Structure of the Martinsburg Formation Near Harrisburg, Pennsylvania. (Under the direction of WILLIAM F. PROUTY.)

The purpose of this paper is to unravel some of the difficult stratigraphy and structure of the Martinsburg formation immediately sur-

rounding Harrisburg. The Martinsburg in this area consists of a thick series of brown, grey, green, and red shales interbedded with some massive sandstones, platy limestones, and limestone conglomerates.

The Martinsburg formation is in contact on the south with the Beekmantown dolomitic limestone and the Chambersburg limestone. On the north, one can see the contact of the Martinsburg with the "Oswego" conglomerate. The Martinsburg ranges in age, according to G. W. Stose, from lower to middle Trenton through the Eden.

The structure of the region was deduced from several key beds which seem to be fairly continuous throughout the whole area. Several critical sections, interpreted differently in previous reports, have been carefully re-studied and some new conclusions have been drawn.

DEPARTMENT OF GERMAN

RICHARD JENTE has published:

"Make hay while the sun shines." *Southern Folklore Quarterly,* I: 63-67. 1937.

A review of Gulielmus Carolus Korfmacher, Ed., *Othloni Libellus Proverbiorum. Speculum,* XII: 527-528. 1937.

A review of Friedrich August Wolf, *Ein Leben in Briefen,* ed. by Siegfried Reiter. *The Classical Journal,* XXXIII: 305-306. 1937.

PROFESSOR JENTE is directing the following research:

MARI LUISE HUTH. The Proverbs and Proverbial Expressions in Moscherosch's *Gesichte Philanders von Sittewald* Compared with the French Translation and its Spanish Source. (For the doctor's degree.)

JOHN ELLIS CRAPS. Goethe's Criticism of the Literary Men of his Day. (For the doctor's degree.)

JAMES FILLMORE COOK. Recurring Types of Character, Situation, and Treatment in the German Drama of Naturalism. (For the doctor's degree.)

BEVERLY TURPIN MOSS. The Proverbs and Proverbial Expressions in the Works of Martin Luther. (For the doctor's degree.)

NICHOLAS MAURICE KORFF. Paul Ernst's *Demetrios* Compared with Other Treatments of the Theme. (Master's thesis completed.)

VIRGINIA STUART REDFERN. Extravagant Metaphors in "Storm and Stress" Drama. (Master's thesis completed.)

GEORGE S. LANE has published:

Problems of Tocharian Phonology, *Language*, Journal of the Linguistic Society of America, XIV: 20-38. 1938.

Indo-European Linguistics, report for the year 1937, *American Year Book* 1937, pp. 865-867.

PROFESSOR LANE has continued his work on the following:

A Comparative Grammar of the Germanic Languages.

Collaboration on a Dictionary of Indo-European Synonyms, under the direction of PROFESSOR C. D. BUCK of the University of Chicago.

In the past year WERNER P. FRIEDERICH has published the following items:

Die Schweiz. A historical, political, and cultural survey of Switzerland. Maps and illustrations. Chicago: J. B. Lippincott Co. 1938.

Political Problems in Present-Day Europe. A discussion of the Haves, the Have-Nots, the Pawns and the Neutrals. With maps and biliography. Chapel Hill: University of North Carolina Press. 1938.

American Short Stories III (Bret Harte, Mark Twain, O. Henry). With an Introduction and Notes. In the "Series of English Texts for Swiss Schools and Universities." Bern, Switzerland: A. Francke & Co. 1938.

Sechs grosse Amerikaner (Benjamin Franklin, Francis Parkman, Nathaniel Hawthorne, Henry Wadsworth Longfellow, Walt Whitman, Eugene O'Neill). Published in the "Kleiner Bund," the literary supplement of "Der Bund," Bern, Switzerland, July-August, 1938.

PROFESSOR FRIEDERICH has the following book in preparation:

Historisches und literarisches Amerika: Dreissig Skizzen repräsentativer Gestalten im politischen und geistigen Werden

der Vereinigten Staaten von Amerika. To be published in Switzerland.

During his leave of absence in Switzerland, Dr. Friederich continued his research in Swiss libraries on the Anglo-Swiss literary relations of the 18th century.

F. E. COENEN has published:

An Excellent Reading Method. The German Quarterly, XI: 139-141. May, 1938.

A book review of M. C. STEWART'S *Graphic Review of German Grammar. The German Quarterly,* XI: 57-58. January, 1938.

He has submitted for publication:

The "Idee" in Annette von Droste-Hülshoff's "Die Judenbuche," an article.

He has the following research now in progress:

An examination of various phases of Theodor Storm's literary art throughout his *Novellen.*

The following doctoral dissertation was accepted during the year by the Department:

LAWRENCE SIDNEY THOMPSON. Wilhelm Waiblinger's Interpretation of Italy. (Under the direction of RICHARD JENTE.)

The purpose of this study is twofold: (1) a definitive evaluation of Waiblinger's most significant literary period (Italy, 1826-1830), and (2) a comparison of his work with that of other authors inspired by Italy. In many respects Waiblinger represents a transition from romanticism to the *forcierte Talente* of "Young Germany", but his Italian work is frequently characterized by striking originality.

Although Waiblinger was rather unsystematic, he seems to have covered all the salient features of Italy which have been grouped under seven main rubrics. His attitude toward Italian art was strongly influenced by Winckelmann and the Pre-raphaelitic tendencies of the early German romanticists (Wackenroder, Tieck, the Schlegels); but at the same time he maintains an objectively critical position that allows a just consideration of artists of the High Renaissance and the Bolognese School who had been spurned by the romanticists as decadents. In the field of literature Waiblinger shows a strong preference for those authors and genres that are most typical of Italian genius. Thus he pre-

fers the folk-pieces of Goldoni to the classic tragedies of Alfieri, and above all he is delighted with the *improvisatori* (influence of *Corinne*). His descriptions and use of Italian landscape in his travel sketches, tales, and poems fall in line with the romantic style; but his significance on this point lies mainly in the fact that the freshness and color of his nature descriptions represent an innovation for the German reading public which now enjoyed for the first time accurate descriptions of Italy on a large scale. Of all travelers in Italy, Waiblinger was the first to appreciate the Italian people. He knew them intimately, and the variety of characters that we find in his works extends to all classes of society. Waiblinger's interest in Italy's historical past centers chiefly around antiquity and Renaissance. Unlike the travelers of the sixteenth and seventeenth centuries, he did not worship ancient ruins simply for their association with Latin authors, but rather he felt them to be an integral part of the modern Italian scene. He looked at the Italian Renaissance in the manner of Herder, for here he found the most important determinative factor of Italian culture. Finally, his attitude toward Catholicism differs sharply from that of the romanticists; for he admired ecclesiastical art and ceremony profoundly, but he never deserted his Protestant faith.

Waiblinger, who had been called "eine nach Norden verkehrte südliche Natur" by his Tübingen friend Moritz Rapp, found in Italy an atmosphere congenial to his talent. In Italy he uncovered literary themes which he was well able to exploit thoroughly. In addition, he is the first German traveler who treated all aspects of the peninsula comprehensively and fairly. Although it is impossible to attribute any considerable influence to his work, he stands at the threshold of a new era in the interpretation of Italy and may at least be called a spiritual ancestor of such men as Jakob Burckhardt, John Addington Symonds, and Paul Heyse.

The following master's thesis was accepted during the year by the Department:

ROSS ELWOOD BACKENSTOSS. Figures of Speech in Heinrich von Kleist's *Der Zerbrochene Krug*: An Investigation into Kleist's Style. (Under the direction of A. E. ZUCKER.)

The purpose of this thesis is to investigate Heinrich von Kleist's use of various figures of speech in his comedy *Der zerbrochene Krug* and their effectiveness in giving a vigorous objective reality to the characters. Chapter I is an introduction and a statement of the method of procedure. Chapter II gives an analysis of individual figures of speech in the lines of each character. Chapter III is a summary in which all the figures of speech are discussed by groups to show wherein they give objective reality to the characters. An appendix gives a table of all the lines discussed.

DEPARTMENT OF HISTORY

A. R. NEWSOME has published:

Objectives of the Society of American Archivists. *The Society of American Archivists, Proceedings . . . 1936 and 1937,* pp. 61-65. Presidential address at the first annual meeting of The Society in Washington, D. C., June 18, 1937.

North Carolina Social Science Maps (1938). Forty-six maps and six charts on ten wall maps, 44x32 inches, published by Denoyer-Geppert Co., Chicago, entitled Exploration and Settlement, Indians and Whites, Independence and Union, Plantation Times, The War for Southern Independence, Agriculture, Industry, Population, Political and Educational, Physical, with *A Teacher's Manual Accompanying the North Carolina Social Science Maps,* 37 pp.

PROFESSOR NEWSOME has completed:

The Presidential Election of 1824 in North Carolina. A monograph in press.

PROFESSOR MITCHELL B. GARRETT is completing a textbook entitled *Modern European Civilization,* 1500-1815.

PROFESSOR GARRETT is directing the following research:

A. L. DUCKETT. Trial and Execution of Marie Antoinette. (Progress on master's thesis.)

A. H. MCLEOD. The Administration of Jean-Sylvain Bailly as First Mayor of Paris. (Progress on master's thesis.)

W. L. MURRAY. The Public Career of Jean Joseph Mounier. (Progress on doctor's thesis.)

L. C. MACKINNEY has published:

Medical Service in French "Hospitals" during the Middle Ages, a brief of a paper prepared for the VIII International Congress of Historical Sciences, Zurich, 1938, in *Communications Présentées.*

The Medieval World, a textbook of medieval civilization. New York: Farrar and Rinehart. 1938.

PROFESSOR MACKINNEY has in preparation:

(With FRANCES HARPER) *The Correspondence of Bishop Fulbert of Chartres*, a volume containing a translation of Fulbert's letters, with critical notes and an introduction concerning the life and work of Fulbert. To be published in the Columbia University "Records of Civilization" series.

Medieval Medical Handbooks: *Synonyma*, a survey of printed and manuscript examples of *synonyma* in French, Italian, German, and English libraries.

He is directing the following master's thesis:

HELEN ANDRUS. Clerical, Lay, and Popular Activity in the Building of German Cathedrals in the Middle Ages.

HUGH T. LEFLER has had accepted for publication:

Twenty-five articles for the *Dictionary of American History*. He is continuing his research on the Society for the Propagation of the Gospel.

He is directing the following research:

JOHN M. JUSTICE. The Society for the Propagation of the Gospel in North Carolina. (Progress on master's thesis.)

ELIZABETH MCPHERSON. A History of Congressional Reporting. (Progress on doctor's thesis.)

MARJORIE MENDENHALL. The History of Agriculture in Ante-Bellum South Carolina. (Progress on doctor's thesis.)

FLETCHER M. GREEN has published:

Georgia's Board of Public Works, 1817-1826. *Georgia Historical Quarterly*, XXII: 119-137, June, 1938.

Gold Mining in Ante-Bellum Virginia. *Virginia Magazine of History and Biography*, XLV: 357-367, October, 1937.

He is directing the following studies:

J. LEON ALDERMAN (master's thesis). The Public Career of David L. Yulee.

JAMES C. BONNER (doctoral dissertation). History of Agriculture in Ante-Bellum Georgia.

LOUIS A. BROWN (master's thesis). The United States Sanitary Commission.

C. O. CATHEY (doctoral dissertation). The Plantation Overseer.

JIM D. CHERRY (master's thesis). The Georgia Railroad Commission of 1879.

CHARLES B. CLARK (doctoral dissertation). Politics in Maryland During the Civil War.

HORACE H. CUNNINGHAM (master's thesis). Edward A. Pollard, Critic of President Jefferson Davis.

ALVIA A. FAHRNER (master's thesis). The Virginia Board of Public Works.

WILLIAM M. GEER (doctoral dissertation). The German Element in South Carolina.

WALTER S. MARTIN (doctoral dissertation). Territorial Florida, 1821-1845.

PAUL MURRAY (doctoral dissertation). The Whig Party in Georgia.

REMBERT W. PATRICK (doctoral dissertation). Jefferson Davis and His Cabinet.

MERRITT B. POUND (doctoral dissertation). The Public Career of Benjamin Hawkins.

JAMES B. SELLERS (doctoral dissertation). The Prohibition Movement in Alabama.

JUDSON C. WARD, JR. (doctoral dissertation). Georgia Under the Bourbons, 1870-1890.

VERNON L. WHARTON (doctoral dissertation). The Negro in Mississippi, 1865-1890.

HOWARD K. BEALE has published:

(With H. B. ALBERTY, BOYD H. BODE, and others), *Educational Freedom and Democracy.* The volume is the *Second Yearbook* of the John Dewey Society published in 1938 by the D. Appleton-Century Company. Of the ten chapters, PROFESSOR BEALE wrote two: Chapter II on "The Historical Background of Educational Freedom," and Chapter III on "The Present Status of Freedom in the Schools."

America Must Save Democracy. *The Classmate,* XLV:27: 6-7. July 2, 1938.

PROFESSOR BEALE has in press:

A History of Freedom in Teaching in American Schools, Charles Scribner's Sons, to appear in 1939 as one volume of the report to the American Historical Association of the Commission on Social Studies in the Schools.

"Freedom of the School Teacher," to appear as one chapter in a volume entitled *Freedom of Expression,* edited by Edward P. Cheney of the University of Pennsylvania. The volume was prepared under the auspices of the Social Science Research Council. It is being published as the November, 1938, issue of the *Annals* of the American Academy of Political and Social Science.

"Academic Freedom" and "The Fifteenth Amendment," to appear as articles in the *Dictionary of American History,* edited by James T. Adams and published by Charles Scribner's Sons.

PROFESSOR BEALE has in preparation:

Theodore Roosevelt, A Biography, to appear as one volume of the "American Political Leaders Series," edited by Allan Nevins of Columbia University and published by Dodd, Mead and Company.

Radical Republicans in the Reconstruction Period, Reconstruction, Teachers, and Teachers' Oaths, to appear as articles in the *Dictionary of American History.*

PROFESSOR BEALE has published in the *American Historical Review,* XLIII: 717, April, 1938, a review of *Black Laws of Virginia: A Summary of the Legislative Acts of Virginia Concerning Negroes from Earliest Times to the Present,* by June Purcell Guild.

He is directing the following graduate studies:

STUART NOBLIN. *Leonidas Lafayette Polk: A Study in Agrarian Leadership.* (For the doctor's degree.)

JACK E. KENDRICK. *Political and Economic Readjustment of the South Atlantic States.* (For the doctor's degree.)

ANNE MILLER HOLMAN. *Russo-American Relations during the Russian Revolution.* (For the master's degree.)

ROSALIE F. MCNEILL. *The Problems of the Administration of Governor Daniel Lindsay Russell of North Carolina,* 1897-1899. (For the master's degree.)

J. C. RUSSELL has published:

Early Parliamentary Organization, *American Historical Review,* XIII: 1-21. 1937.

Length of Life in England, 1250-1348. *Human Biology,* IX: 528-541. 1937.

Master Elias Dereham and his Connection with Durham. *Transactions of the Architectural and Archaeological Society of Durham and Northumberland,* VIII: 15-26. 1938. (With H. L. HONEYMAN.)

1937-1938 Supplement to *Dictionary of Writers of Thirteenth Century England, Bulletin of the Institute of Historical Research,* XVI: 48-50. 1938.

Chroniclers of Medieval Spain. *Hispanic Review,* VI: 218-235. 1938.

PROFESSOR RUSSELL read a paper, Decline of Population, 200-700 A. D., and its Intellectual and Social Results, at the VIIIth International Congress for Historical Sciences at Zurich on August 29, 1938, of which an abstract appears in *Communications Présentées* of the Congress, pp. 352-354.

He has received grants from the Social Science Research Council for the summer of 1938 and from the American Philosophical Society for the year 1938-1939 for research in England upon the population of medieval England.

CECIL JOHNSON has in preparation:

Monograph on British West Florida, 1763-1783. During the past summer PROFESSOR JOHNSON worked in the Gage and Clinton Papers of Clements Library of the University of Michigan on military aspects of this subject.

PROFESSOR JOHNSON has published:

A review of *Territorial Papers of the United States,* Vol. V., C. E. Carter, ed., *North Carolina Historical Review,* V: 3. July, 1938.

J. CARLYLE SITTERSON has published:

Magnolia Plantation, 1852-1862: a Decade of a Louisiana Sugar Estate, *Mississippi Valley Historical Review,* September, 1938.

He has had accepted for publication:

Economic Sectionalism in Ante-Bellum North Carolina. *North Carolina Historical Review.*

Some Aspects of Cuban Sugar Culture. *Hispanic-American Historical Review.*

He is preparing for publication:

The Secession Movement in North Carolina, a monograph.

The McCollams: A Planter Family of the Old and New South.

Lewis Thompson: a North Carolina Planter and his Louisiana Investments.

GEORGE E. MOWRY has completed:

Theodore Roosevelt and the Progressive Movement, to be published in book form in the near future.

American Society and the World War, an investigation of the economic and cultural changes in American Society during the World War.

Theodore Roosevelt and the Election of 1910. (A paper read before the Mississippi Valley Historical Society, to be published in the *Mississippi Valley Historical Review.*)

The Antecedents of New Deal Liberalism, a paper to be read before the American Historical Society, December, 1938.

The Progressive Lily White Party of 1912, completed but not yet accepted for publication.

The following doctoral dissertation was accepted by the Department during the year:

DUVON CLOUGH CORBITT. The Colonial Government of Cuba. (Under the direction of WILLIAM WHATLEY PIERSON.)

The body of this study is divided into four parts, entitled respectively: The Early Government of Cuba; The Administration of Cuba from 1763 to 1853, or the Period of Divided Power; The Administration of Cuba

from 1853 to 1898, or Unified Control; and Representative Government under Spanish Rule. To these are added a résumé and a bibliography.

Part I, consisting of only one chapter, outlines the institutions set up in the Island at the time of the conquest and the few changes introduced prior to the capture of Havana by the British in 1762. Few innovations were made in the administrative institutions after the first century until the event mentioned shook Spanish officialdom into action.

Part II contains chapters dedicated to the captain-general, the financial administration, the local government, the administrative boards or *juntas*, and the judiciary. These point out the innovations caused by the introduction of the system of *intendencias* in 1765, the loss of Santo Domingo, and the first reactions of Spain to the loss of her continental colonies. As the title indicates, the period from 1763 to 1853 was one in which the administration of the Island was divided among a number of agencies instead of being concentrated in the hands of a single person or group of persons.

Part III traces the unification of the administrative functions in the hands of the captain-general. This was due to a growing fear of the loss of the Island and the skilful use of that fear by Captain-General José Gutiérrez de la Concha. There are chapters which cover the following subjects: unification of control, the central administration, provincial government, municipal government, the financial administration and the judicial system.

Part IV summarizes Cuba's participation in representative government, which, although it was never very effective, colored the whole of the nineteenth century and furnished much of the revolutionary criticism of the Spanish administration.

In the course of the study it is shown that Spain's first reaction to the loss of her continental colonies was one of repression which manifested itself in the strengthening of the military arm. Examples of this are the creation of a military commission to try cases usually handled by the civil courts and the grant to the captain-general of the powers exercised by governors of besieged cities, both in 1825. A quarter of a century later the López expeditions and other annexation schemes frightened Spain into deserting her time-honored system of checks and balances. She then concentrated all administrative functions in the hands of the captain-general, thus creating an officer of a type previously unknown in the Spanish colonies. Due, however, to a number of influences, especially to political turnovers in the Peninsula itself, Spain soon began to change captains-general in Cuba so frequently that she almost neutralized the work done by unifying the administration. It is also pointed out that the vacillating policy toward Cuba, with liberalism and repression alternating in rapid succession, handicapped Spain in dealing with the problems of the Island.

The following master's theses were accepted by the Department during the year:

SOLOMAN BREIBART. The South Carolina Constitutional Convention of 1868. (Under the direction of FLETCHER M. GREEN.)

The inauguration of military reconstruction in South Carolina found the state politically unstable. Negroes replaced whites as the dominant political element. The support of this inexperienced class was gained for congressional reconstruction through the teachings and influence of the Union League, the Republican party, the Freedmen's Bureau, and the military.

Regimentation of the Negro vote resulted in a South Carolina constitutional convention anomalous to pre-Reconstruction standards. The body was composed predominantly of native Negroes and carpetbaggers. There were only thirty-two native Southern white delegates. The convention was not representative of the tax-payers, and the principle of direct representation was violated.

The delegates sought and achieved four results: the adoption of a constitution to meet Congress' approval, the guarantee of political and civil rights to the Negro, the relief of the debtors and a program for the distribution of land to the landless freedmen, and personal and party aggrandizement. Concomitantly, the convention effected a greater democratization of the fundamental law of the state.

KATHERINE CHATHAM. Plantation Slavery in Middle Florida. (Under the direction of FLETCHER M. GREEN.)

Settlers, moving south-westward from the Carolinas, Georgia, and Virginia, began to immigrate to the territory of Florida shortly after it had been acquired by the United States. The planters found fertile soils, gently rolling lands, and a climate well suited to the culture of cotton in the Middle District of Florida, which stretches from the Apalachicola to the Suwannee River, and from the Georgia boundary to the Gulf of Mexico. Bringing their families and their Negro slaves, they moved into the region and established a system of plantation-slavery which closely resembled that already existing in the older sections of the South.

The larger plantations became almost self-sufficient economic units. While the planters were primarily interested in growing cotton, they attempted also to produce all the food and much of the clothing and equipment needed on the estate. Because of frontier conditions in the region, the plantation communities became units of social, religious, and educational life.

Some idea of the organization, operation, and equipment of these plantations from ante-bellum days through the break-up of the old régime

may be formed through a study of their journals and records, together with the letters, papers, and memoirs of their owners. This study is based on the documents of four estates which may be considered typical cotton plantations of Florida: El Destino and Chemonie plantations, the property of George Noble Jones, and Pine Hill and Horseshoe plantations, owned by Dr. Edward Bradford.

CORNELIA ESTABROOK. The Trial of King Louis XVI. (Under the direction of M. B. GARRETT and C. H. PEGG.)

This study attempts to give an accurate account of the trial of King Louis XVI, to interpret it, and to estimate its place in history. It is shown to have been largely a political, rather than a judicial, process, in which the majority of the legislators were convinced from the beginning of the King's guilt. The Gironde made some attempts to have the question referred to the people for judgment; but the Jacobins succeeded in their drive for the King's immediate condemnation, holding that his death was imperative for the safety of the state. Opinion in the streets of Paris was in accord, in the main, with the decision of the Convention.

EUGENE ASHBY HAMMOND. The Medical Profession in Thirteenth Century England. (Under the direction of J. C. RUSSELL.)

This thesis deals with the social and economic aspects of the medical profession in thirteenth century England. The education of the physicians and surgeons, the types of service they performed, the remuneration they received, and their relative position in contemporary society are some of the phases most emphasized in this study. No attempt has been made to explore the field of medical science, nor the contribution of thirteenth century physicians toward general medical progress.

Biographical notes on fifty-two physicians and surgeons compose the Appendix of the thesis. Physicians of royal households, those of cathedrals and monasteries, and many of less distinctive affiliations have been included. From these notes have been gleaned the bits of information which make up the general conclusions of the thesis.

Physicians and surgeons fortunate enough to secure the patronage of men of means were paid generous and often handsome salaries. Contrary to popular belief, they were frequently men of social rank and importance. Their education was usually obtained in monastic and cathedral schools, though some physicians are known to have been trained at the universities of Paris, Montpellier, Bologne and Salerno. Many physicians held church benefices, dividing their time between ecclesiastical and medical duties. Surgeons were almost never churchmen.

PAUL APPERSON REID. Gubernatorial Campaigns and Administrations of David S. Reid, 1848-1854. (Under the direction of A. R. NEWSOME.)

David S. Reid was the originator of the free suffrage issue in North Carolina politics, and the adoption of the free suffrage amendment in 1857 eliminating the fifty-acre qualification for senatorial suffrage was due largely to his efforts. Reid was an honest, courageous, aggressive, convincing leader with high standards of politics. He infused the old conservative Democratic party with hope, aggressiveness, and liberality, which helped it to achieve political control in 1850 and to end for all times the domination of the Whig party which had controlled the state for fourteen years. By stressing state issues rather than national, he helped to carry the state political campaign to its highest development in North Carolina prior to the Civil War. During his administrations, the Democratic party extended the state internal improvement program and promoted other progressive policies which made it possible for the party to continue in power. Instead of being a mediocre politician who happened to stumble upon an issue which put him in office, Reid was one of the ablest leaders of the ante-bellum period.

ROBERT BELVIN STARLING. The Plank Road Movement in North Carolina. (Under the direction of A. R. NEWSOME.)

During the decade 1850-1860 North Carolina responded to the imperative need for improved transportation facilities by chartering eighty-four plank road companies. Although many of these toll roads were never begun, approximately 500 miles were constructed and operated. The Fayetteville and Western Plank Road, from Fayetteville to Salem, was the longest and most noted of the plank roads constructed in North Carolina. These roads facilitated the marketing of produce and were popularly called "farmers' railroads." The income failed to repay the original cost of construction before a general rebuilding was necessary. The expense of repair and reconstruction, the Civil War, railroad competition, and the increase in the price of lumber and labor made the downfall of the plank road system of highway construction inevitable.

WILLIS GUILFORD WHICHARD. The Rider Legislation of the Hayes Administration. (Under the direction of W. W. PIERSON.)

The Hayes administration was marked by unsuccessful attempts on the part of a Democratic majority in the House the first two years and in the House and Senate the last two years to repeal the federal election laws and the law providing for a juror's test oath. Fearing a presidential veto, a filibuster, or other devices which might be employed to block their program, party leaders decided to attach riders to the ap-

propriation bills as a means of securing the repeal, claiming that Congress had the inherent right to withhold appropriations unless a redress of grievances was granted.

The contest was a political struggle, with the Republicans fighting to retain their power, while the Democrats sought an issue upon which to unite in quest of victory in 1880. The chief result was to restore the equilibrium of co-ordinate independent branches of government, each operating within its own constitutionally prescribed sphere.

THE SCHOOL OF LAW

M. S. BRECKENRIDGE has published during the year:

Book Review, *Tax Systems of the World,* 16 *North Carolina Law Review* 440, June, 1938.

ALBERT COATES has published during the year:

Accounting for Crime, 16 *North Carolina Law Review* 364, June, 1938.

The State's Legal Business, 16 *North Carolina Law Review* 119, February, 1938.

Book Review, Cooper, *Here's to Crime;* Cooper, *Ten Thousand Public Enemies,* 16 *North Carolina Law Review* 203, February, 1938.

F. W. HANFT has published during the year:

Legal Education Yields to the Times, 47 *Yale Law Journal* 214, December, 1937.

Book Reviews:

Report of the Inquiry of Coöperative Enterprise in Europe, 16 *North Carolina Law Review* 443, June, 1938.

Sturges, *Cases and Materials on Debtors' Estates,* 86 *University of Pennsylvania Law Review* 449, February, 1938.

FRED B. MCCALL has published during the year:

The Destructibility of Contingent Remainders in North Carolina, 16 *North Carolina Law Review* 87, February, 1938.

BRECK P. MCALLISTER has published during the year:

Taxpayers' Remedies; the Washington Property Tax, 13 *Washington Law Review* 91, April, 1938.

Book Reviews:

Handler, *Cases and Materials on Trade Regulation.*

Oppenheim, *Cases on Trade Regulation,* both in 23 *Iowa Law Review* 138, November, 1937.

Stason, *Cases and Other Materials on Administrative Tribunals,* 24 *Virginia Law Review* 703, Spring, 1938.

Werne (ed.), *Business and the Robinson-Patman Law,* 16 *North Carolina Law Review* 427, June, 1938.

D. W. MARKHAM has published during the year:

Why a "Burden of Going Forward"?, 16 *North Carolina Law Review* 12, December, 1937.

M. T. VAN HECKE has published during the year:

The Implied Powers of the North Carolina State Bar, 16 *North Carolina Law Review* 66, December, 1937.

ROBERT H. WETTACH has published during the year:

Unfair Labor Practices under the Wagner Act, 5 *Law and Contemporary Problems* 223, Spring, 1938.

Wrongful Death and Contributory Negligence, 16 *North Carolina Law Review* 211, April, 1938.

THE SCHOOL OF LAW has the following studies in progress:

ALBERT COATES

Probation, Pardon and Parole in North Carolina, to be published in the February 1939 issue of the *North Carolina Law Review.*

Governmental Liability in Tort in North Carolina.

JOHN P. DALZELL

Book Review, Christ, *The Law of Contracts and Sales,* to be published in the *Tulane Law Review.*

F. W. HANFT

Haphazard Regimentation under Licensing Statutes, with J. NATHANIEL HAMRICK, to be published in the December 1938 issue of the *North Carolina Law Review.*

FRED B. MCCALL

Work continued as member of Commission on Revision of the Laws of North Carolina Relating to Estates.

M. T. VAN HECKE

Serving this year as Reporter for the American Law Institute's Restatement of the Law of Injunction against Tort. This will be published by the American Law Institute in the fall of 1939.

THE LIBRARY AND THE SCHOOL OF LIBRARY SCIENCE

ROBERT B. DOWNS has published:

Resources of Southern Libraries: A survey of facilities for research. Chicago, *American Library Association,* 1938.

A survey of 317 libraries in thirteen states. The investigation, an outgrowth of the work of the American Library Association's Committee on Resources of Southern Libraries, was undertaken and guided throughout by the following specific objectives: (1) to provide a basis for interlibrary loans; (2) to assist scholars and advanced students to find the best collections in their fields; (3) to give a basis for planning, as in agreements to divide acquisition activities; (4) to aid national and regional catalogs; (5) to locate and describe little-known collections of value for research; (6) to discover particular weaknesses in libraries of the southern area; and (7) to stimulate the development of research collections.

CARL M. WHITE has published:

Trends in the Use of University Libraries. (In *College and University Library Service,* ed. by A. F. Kuhlman. Chicago: American Library Association. 1938. Pp. 15-39.)

A study which seeks to describe certain changes in the use made of university libraries during the last twenty-five years and to analyze some of the social and educational factors which seem to have had something to do with the changes remarked.

LUCILE KELLING has the following studies in progress:

The *Consolatio* in Greek and Roman Literature.

There are a number of examples of *Consolationes* in Greek and Roman literature. The ideas, words, and phrases show an interesting correspondence. This study is an attempt to determine the continuity of ideas, form, and language in this highly specialized literature.

(With A. I. SUSKIN.) *Index Verborum Iuvenalis.*

The Index is to be a complete index of all words, including proper names, based on the latest critical edition.

PROFESSOR KELLING has published:

Publication: Contemporary Poetry. *University of North Carolina Extension Bulletin,* IV: 3. 1938.

DEPARTMENT OF MATHEMATICS

ARCHIBALD HENDERSON has published:

A Classic Problem in Euclidean Geometry. *Journal of the Elisha Mitchell Scientific Society,* 53: 2. December, 1937.

(With JOHN W. LASLEY, JR.) On Harmonic Separation. *National Mathematics Magazine,* XIII: 1: 3-21. October, 1938.

The authors present an historical account of the development of harmonic separation from the time of the ancient Greeks to the present. The steps in the evolution of the linear construction for harmonic conjugates are outlined from Serenus to Chasles. Other harmonic constructions are given, some involving two circles, some one circle. The notions of inversion and of similar triangles are employed. Analytic methods applied to the bisector problem and to the circle of Apollonius yield expressions for the foregoing geometric solutions in algebraic form. (Abstract from the *Bulletin of the American Mathematical Society,* 44: 7: 492. July, 1938.)

T. F. HICKERSON is continuing a study of the *hinged* and *fixed* Rigid Frame bridge of steel and concrete treated (1) as a frame with curvature of the deck neglected, (2) as an arch with and without reinforcement.

He has the following in press:

Route Surveying, Section 13 of the *General Engineering Handbook* which will be published by McGraw-Hill Book Company under the direction of Professor Charles E. O'Rourke, Cornell University, Editor-in-chief. Route Surveying covers some thirty pages dealing with both highway and railway location and design.

JOHN W. LASLEY, JR. has published, in collaboration with

ARCHIBALD HENDERSON: On Harmonic Separation. *National Mathematics Magazine,* XIII: 1: 3-21. October, 1938.

(Abstract above, listed under Archibald Henderson.)

On Quadratic Trinomials. *The High School Journal,* XXI: 3: 92-98, 114. March, 1938.

This paper analyzes the more frequently employed techniques associated with the quadratic trinomial. Illustrations and detailed proofs are supplied. The inter-relations of these methods are emphasized. Methods are presented which are claimed to be better suited to the problem.

PROFESSOR LASLEY has under his direction the following:

R. C. BLACKWELL. (Progress on doctor's dissertation.) The Osculating Cubics of a Plane Curve.

N. DI COSTANZO. (Progress on master's thesis.) On the Relation between Projective Geometry and Theory of Equations.

R. D. VOGLER. (Progress on master's thesis.) Certain Methods of Approximation for the Theory of Equations.

ANNIE JOHN WILLIAMS. Some Relations between Metric and Projective Differential Geometry. (Master's thesis completed.)

E. T. BROWNE has published:

Sets of Conjugate Matrices, *American Journal of Mathematics,* LIX: 4: 845-868. October, 1937.

The Classification of Correlations in the Plane, *American Mathematical Monthly,* XLIV: 9: 566-573. November, 1937. (With C. A. DENSON.)

The Classification of Correlations in Space. *Journal of the Elisha Mitchell Scientific Society,* 54: 1: 23-44. June, 1938.

Mathematics, A Living Science, *The High School Journal,* XXI: 1: 7-23. January, 1938.

This paper was an address delivered before the mathematics students of Duke University in Page Auditorium, November 9, 1937.

PROFESSOR BROWNE has under his direction the following:

H. M. NAHIKIAN. (Progress on doctor's dissertation.) *Matrices Commutative with a Given Matrix.*

H. V. PARK. (Progress on doctor's dissertation.) *Matrices A and B Such that AB and BA Have the Same Reduced Characteristic Function.*

(See *Research in Progress,* October, 1936, p. 68).

E. T. BROWNE is engaged in a study of *quasi-k-commutative matrices.*

If A and B are two n-square matrices such that
$$AB-BA=C\neq 0, \quad AC=CA, \quad BC=CB,$$

McCoy calls A and B *quasi-commutative.* This notion was generalized by Roth, who considered mutually k-commutative matrices. In this study it is suggested that the generalization be made in a different direction, obtaining pairs of *quasi-k-commutative* matrices *A* and *B*. A study is being made of the properties of such pairs of matrices.

E. L. MACKIE has published:

Manhandling an Equation. *High School Journal,* May, 1938.

M. A. HILL, JR. has published:

Introduction to College Mathematics (With J. BURTON LINKER). New York: Henry Holt and Company. May, 1938.

REINHOLD BAER has completed the following papers:

The Significance of the Lattice of Subgroups for the Structure of the Group.

Nets and Groups.

Groups with Abelian Central Quotient Group.

Almost-Hamiltonian Groups.

These papers have all been submitted to the national mathematical journals, and one of them is now in press.

N. JACOBSON has published:

Simple Lie Algebras of Type A. *Annals of Mathematics,* 39: 1: 181-188. 1938.

Simple Lie Algebras over a Field of Characteristic Zero. *Duke Mathematical Journal,* 4: 3: 534-551. 1938.

MR. JACOBSON has submitted for publication:

Normal Semi-Linear Transformations (to the *American Journal of Mathematics*).

Structure and Automorphisms of Semi-Simple Lie Groups

in the Large (to the *Annals of Mathematics,* presented to the National Academy of Science October 24).

Cayley Numbers and Lie Algebras of Type G (to the *Duke Mathematical Journal*).

The following master's theses were accepted by the Department during the year:

JONES VONORE HOWELL. Geometric Solutions of The Biquadratic Equation. (Under the direction of ARCHIBALD HENDERSON.)

The purpose of this thesis has been to give a summary of the important historical solutions of the biquadratic equation, to present some interesting special cases, and to give some geometric solutions of the problem not found in publication. The historical solutions include those of: Hofmann, Heilermann, Graustein, Archibald Henderson, Hoppe, Gérono, Vieille, Mathews, Hayashi, Thomsen, Chasles, Schulte, and Running. Three special cases are presented by the biquadratic with roots in an arithmetic progression, in a geometric progression, and in an harmonic progression. Geometric solutions, not found in available literature, were given of Ferrari's and Descartes' algebraic solutions of the biquadratic equation. Lastly, there was given a solution of the problem depending upon two base conics.

JOHN FREDERICK MUNCH. Fermat's Last Theorem for the Case n=3. (Under the direction of E. T. BROWNE.)

This thesis consists of a collection of the different types of proofs of the impossibility in integers of the equation $x^3+y^3=z^3$. Every proof makes use of Fermat's method of infinite descent. The method of attack was in most cases to break the left member of the equation into three relatively prime factors, each therefore a cube, two of which added together gave the third. The most notable exceptions to this were the methods of Krey, who made use of binary forms and their composition, and those of Kummer and Gauss, who made use of the cube roots of unity and the quadratic field built up on the square root of minus three.

DEPARTMENT OF MUSIC

GLEN HAYDON has completed the translation of Knud Jeppesen's *Kontrapunkt.* (To appear in January, 1939, published by Prentice-Hall, Inc.)

PROFESSOR HAYDON is writing a text-book on Musicology, and is directing the following research:

PETER HANSEN. The Life and Works of Phinot. (For the doctor's degree.)

BENJAMIN F. SWALIN has completed the manuscript of a book, *The Violin Concerto in German Romanticism.*

PROFESSOR SWALIN has published the following papers:

A Critique of Violin Study. *Music Teachers National Proceedings,* 1937.

The College and University Orchestra. *Music Educators Yearbook,* 1938.

JAN PHILIP SCHINHAN has completed the following research:

Survival of Spanish Songs in Southern Florida, accepted for publication by *Southern Folklore Quarterly,* University of Florida, Gainesville.

Critical Study and Analysis of *Music in Ancient Arabia and Spain* by Julián Ribera, English by E. Hague, Stanford University Press, 1929.

Critical Study and Analysis of *A Comparative Study of Regional Folk-Song in Spain* by George Boylston Brown, Rochester, N. Y., 1936.

Translation of an article about Dominique-Pierre Cerone by F. J. Fétis in *Biographie Universelle des Musiciens,* Paris, 1883.

PROFESSOR SCHINHAN has in progress:

Meter versus Rhythm, a critical study and plea for valid scientific definitions in music.

Methodology in Comparative Musicology, a synthesis of all methods including some new suggestions, and an argument for simplification and scientific accuracy.

Continuation of the study of North Carolina folk music.

The following master's thesis was accepted by the Department during the year:

KATHRYN ISABEL KENNARD. The Beginnings of the Violoncello Sonata in Italy: A Style Critical Study. (Under the direction of GLEN HAYDON.)

The thirteen violoncello sonatas which comprise this style critical study were written by five Italian composers of the late seventeenth

and early eighteenth centuries. They include the first solo sonata for the instrument and twelve other early works.

The sonatas are most frequently in four movements which maintain one key signature throughout. The form of the majority of movements is binary, although in several an inclination toward a ternary form was noted. Melodic sequences and rhythmic motifs act as formalizing elements. Modulations are seldom made to any other than nearly related keys. The chords are confined largely to the principal triads, altered chords, except for an occasional Neapolitan sixth and a supertonic with raised third, being absent. Suspensions are infrequent, but when they do occur they are usually sevenths and fourths.

These works are distinctly instrumental in character—sonatas in that respect if not in the sense of formal design which the word has now assumed.

DEPARTMENT OF PATHOLOGY

RUSSELL L. HOLMAN has completed:

The Ability of Lymph to Maintain Viability in "Devascularized" Lymph Nodes. *American Journal of Pathology,* **14:** 463. 1938.

Complete Anuria Due to Blockage of Renal Tubules by Protein Casts in a Case of Multiple Myeloma. *Archives of Pathology.* In Press.

PROFESSOR HOLMAN has the following research in progress:

Studies on the Chemical Composition and Functional Significance of Mammalian Lymph.

The Effect of Renal Injury upon the Regeneration of Plasma Proteins.

Regeneration of Lymphatics Following Extirpation of the Popliteal Lymph Node.

THE DEPARTMENT OF PHARMACOLOGY

WM. DEB. MACNIDER has published:

The Development of an Acquired Resistance to Bichloride of Mercury by Renal Epithelium in the Proximal Convoluted Tubule. *Proceedings of the Society for Experimental Biology and Medicine.* **37:** 90-91. 1937.

Certain Recent Developments in Chemistry. Their Bearing on Cellular Activity. Being the Chandler Memorial Lecture delivered at Columbia University, October 13, 1937. *New York State Journal of Medicine.* 38: 1-6. 1938.

A Consideration of the Acquired Resistance of Fixed Tissue Cells to Injury. *Annals of Internal Medicine.* 12: 147-165. 1938.

G. L. DONNELLY has published:

Sulfanilamide—Pharmacology and Therapeutics. *Transactions of the Medical Society of the State of North Carolina.* 85: 501-509. 1938.

THE DEPARTMENT OF PHARMACOLOGY has the following research in progress:

1. Research is being continued in the Department by PROFESSORS MACNIDER and DONNELLY which concerns itself with the sequence of changes which develops in the kidney as this organ passes from an experimentally induced acute injury to a state of chronic injury, usually designated as a condition of chronic nephritis.

2. At different periods in the transaction of such tissue from the characteristics of acute injury to that of a chronic injury the resistance of various components of this tissue are in the process of study in terms of their resistance or susceptibility to various injurious agents.

3. A cytological study of the changes developing in the rat kidney which, insofar as can be ascertained, are essentially associated with the age of the animal and not with any intercurrent injury such as might be inflicted by a process of disease.

4. The susceptibility of the liver to an injury from Cinchophen in normal animals and in animals that have been subjected to the action of ethyl alcohol in toxic amounts.

SCHOOL OF PHARMACY

HENRY M. BURLAGE has been engaged in the following studies during the year:

A Survey of Drugs and the Drug Industry of North Carolina (with M. L. JACOBS).

The Constituents of White Snakeroot.

Phytochemical Studies of Piscaria (*Eremocarpus setigera*). I. Examination of the Oil of the Seed. *Journal of American Pharmaceutical Association.* 27: 666-667. 1938.

A Pharmaceutical Study of Balsam Peru and its Extracts (with H. G. PRICE).

The Assay of Lead Oleate Plaster and Ointment.

PROFESSOR BURLAGE is working on a book dealing with The Medicinal Plants of North Carolina (with M. L. JACOBS).

MARION L. JACOBS has published the following during the year:

A Study of Isopropyl Ether and Methylene Chloride as Solvents in Alkaloidal Assaying, II. *Journal of the American Pharmaceutical Association,* 27: 672-680. 1938.

PROFESSOR JACOBS has been engaged in the following studies during the year:

A Phyto-chemical Study of *Kalmia angustifolia* L. (with WILLIAM R. LLOYD). This study has been completed and was presented before the American Pharmaceutical Association in August, 1938.

Continuation of a Survey of Drugs and the Drug Industry in North Carolina (with H. M. BURLAGE).

PROFESSOR JACOBS is working on a book dealing with the Medicinal Plants of North Carolina (with H. M. BURLAGE).

The following master's theses were accepted by the Department during the year:

WILLIAM REESE LLOYD. A Phytochemical Study of Kalmia Angustifolia. (Under the direction of MARION L. JACOBS.)

A study of the literature reveals that ursolic acid, andromedotoxin (phlorhizin), and arbutin are characteristic of members of the Heath

family. A review of the literature of these compounds and of the genus Kalmia is given.

Determinations of the total ash, acid insoluble ash, and moisture content are reported, in addition to a qualitative analysis of the ash. A hydrocarbon, an alcohol, and sitosterol were found in the petroleum ether extract. Ursolic acid, phlorhizin, and arbutin were identified in the ether extract. Phlorhizin was identified in the chloroform extract. Catechol tannins, phlobaphene and arbutin were identified in the alcohol extract. The total tannins were determined to be 6.51%. The total phlorhizin content was found to be 0.066%. The total arbutin content was found to be 0.93%. Kalmia angustifolia may be a possible commercial source of the diagnostic agent phlorhizin.

H. DALE ROTH. The Preliminary Examination of *Chrysopsis Graminifolia* With Particular Reference to the Water-soluble Constituents. (Under the direction of HENRY M. BURLAGE.)

A review of literature revealed that no studies have been made of this plant. Because of its reputed medicinal value and because it grows so profusely in the Carolinas, it was decided to make a study of it to ascertain, if possible, any therapeutically active substances.

The material used in this investigation was collected in the vicinity of Wiggins in Colleton County, South Carolina. Three collections of the entire herb were made: (1) in the Fall of 1933 just after frost, (2) in July, 1934, and (3) in August, 1934.

The preliminary examination may be summarized as follows:

(1) Moisture content varying from 9.8-10% for three lots of the entire herb collected at various seasons of the year. (2) Total ash varying from 6.26% to 8.33%; acid-insoluble ash 0.67 to 4.65%. (3) Extracts with selective solvents using the Palkin-Walkins' Extractor are determined. (4) Preliminary tests show the presence of nitrogen, phosphorus, saponins and reducing substances, tannins and bitter principle. (5) Quantitative determinations show (a) saponins 0.36% and (b) catechol tannins 3.35% and pyrogallol tannins 0.60%.

DEPARTMENT OF PHILOSOPHY

GEORGE F. THOMAS has revised and expanded his John Calvin McNair Lectures, delivered at the University in May, 1937, for publication by the University of North Carolina Press under the title *Spirit and its Freedom.*

The book is a study in the Philosophy of Spirit, partly historical and partly constructive, with applications to the problems of Freedom and of Politics, especially in a democracy.

LOUIS OSGOOD KATTSOFF has completed:

A review of Hempel and Oppenheim's, *Der Typusbegriff in Licht der neuen Logik. Philosophical Review,* XLVII: 3: 314-315. May, 1938.

Undefined Concepts in Postulate Sets. *Philosophical Review,* XLVII: 3: 293-300. May, 1938.

La Logique Non-Aristotelicienne et la Crise en Science. *Scientia,* July, 1938.

Philosophy, Psychology and Postulational Methods, to appear in *Psychological Review.*

Postulational Technique in Political Philosophy.

An attempt at a logical method for comparing different political philosophies.

Knowledge and Reality.

An attempt to demonstrate the parallelism between thought and Reality.

LOUIS OSGOOD KATTSOFF has in progress:

Introduction to the Philosophy of Mathematics.

Fourteen chapters have now been completed.

Researches in Concepts of a Topological Philosophy.

An attempt to apply the concepts of topology to an analysis of the structure of philosophic system.

Outline of Hegel's Philosophy.

This will be developed into a text presenting and analysing Hegel's thought and its application to modern problems.

The Part-Whole Relation in Contemporary Civilization.

An anlysis of the idea of systematics in the thought of today.

An Interpretation of Intuitionist Formulae.

An attempt to interpret the formulae of intuitionist logic consistently.

The following master's thesis has been accepted by the Department during the year:

JOHN WALTER CHARLES GROTYOHANN. The Disparity between Form and Content in the Contemporary Drama with Reference to Aristotle's "Poetics." (Under the direction of GEORGE F. THOMAS.)

A comparison of the dramatic formal elements as analyzed by Aristotle with the dramaturgical practices of the playwrights of the roman-

tic period and with those of the present demonstrates that characterization has become as important as plot and identical with content. An analysis of recent dramas shows how the free handling of time and the use of musical stage techniques have affected their formal structure without, however, retaining the romantic fullness of characterization, particularly in the socially significant play. Thus the social plays revert to Greek tragedy fundamentally, despite their modern form, inasmuch as their content concerns the body politic represented by narrowly drawn characters. It is concluded that this disparity is overcome as the sociological subject matter is fully comprehended and represented with the thorough romantic characterization of the individual as universal, even when acting as a member of a particular group within the social organism.

DEPARTMENT OF PHYSICS

ARTHUR E. RUARK and CREIGHTON C. JONES have published:

Evidence against the Existence of Heavy Beta-Particles. *Physical Review,* LIII: 264. 1938.

Cloud Chamber Evidence against the Existence of Heavy Beta-Particles. *Physical Review,* LIII: 454. 1938.

Further Evidence Against Heavy Beta-Particles. *Physical Review,* LIII: 496. 1938.

Stereoscopic Viewing and Measuring Instrument for Cloud Chamber Photographs. (Preliminary communication.) *Physical Review,* LIII: 853. 1938.

ARTHUR E. RUARK and FOREST E. BRAMMER have published:

The Efficiency of Counters and Counter Circuits. *Physical Review,* LII: 322. 1938.

OTTO STUHLMAN, JR. has completed:

The Nonlinear Transmission Characteristics of the Auditory Ossicles. *The Journal of the Acoustical Society of America,* IX: 119. 1937.

The Dynamics of the Human Ossicles. (Read before the North Carolina Academy of Science, Raleigh meeting, May, 1938.)

The Mechanism called Nerve Conductance. (Read before the Elisha Mitchell Scientific Society, February 8, 1938.)

EARLE K. PLYLER and PAUL E. SHEARIN have published:

Calibration Wave-Lengths for Infrared Spectrometers. *Journal of the Optical Society of America.* XXVIII: 61. 1938.

EARLE K. PLYLER and E. S. BARR (Tulane University) have published:

The Change in Absorption of Water at 4.7μ Due to Solutions. *Journal of Chemical Physics.* VI: 316. 1938.

JOHN A. WHEELER has published:

On the Mathematical Description of Light Nuclei by the Method of Resonating Group Structure. *Physical Review,* LII: 1107. 1937.

Molecular Viewpoints in Nuclear Structure. *Physical Review,* LII: 1083. 1937.

Wave Functions for Large Arguments by the Amplitude Phase Method. *Physical Review,* LII: 1123. 1937.

JOHN A. WHEELER and E. TELLER have published:

On the Rotation of the Atomic Nucleus. *Physical Review,* LIII: 778. 1938.

JOHN A. WHEELER and C. V. CANNON (Chemistry Department, University of North Carolina) have published:

The Rotational Transition in Solid Methane. *Physical Review,* LIII: 684. 1938. (This work is being continued and extended.)

JOHN A. WHEELER and KATHERINE WAY have published:

Nuclear Quadrupole and Magnetic Moments. *Physical Review,* LIII: 685. 1938.

Dr. Way has been granted a post-graduate fellowship for work at Bryn Mawr, 1938-1939.

THE DEPARTMENT OF PHYSICS has the following research in progress:

PROFESSOR RUARK is writing the second edition of *Atoms, Molecules and Quanta* with PROFESSOR HAROLD C. UREY.

CREIGHTON C. JONES, FORREST WESTERN and ARTHUR RUARK have research in progress on the radiative losses of fast elec-

trons in gases, up to an energy of 2.4 million electron-volts. In support of this work, the American Philosophical Society made a generous grant, which provides the full-time services of DR. JONES as research associate during the academic year 1938-1939.

PROFESSOR STUHLMAN has the following studies under way:

Selective Radio Frequency Absorption in Gases.

The Bio-physical Significance of the Basilar Membrane in the Human Ear.

The Structural Significance of the Stapes of the Human Ear.

PROFESSOR PLYLER is continuing his researches on the infrared absorption of mixtures of liquids. Two investigations which form a part of the general problem have been completed but not yet published. (See abstracts of Doctor's theses by J. W. WHITE and GEORGE E. CROUCH.)

DR. SHEARIN and DR. PLYLER have research in progress on Reactions of OH Frequencies in Solutions and on Study of Atmospheric Absorption in the Infrared.

JAMES B. FISK has the following writing and research in progress:

The Emission from Metals of Negatively Charged Particles under High Energy Positive Ion Bombardment. (With W. W. BUECHNER and A. G. HILL at Massachusetts Institute of Technology.)

Nuclear Photo-disintegration. (With A. G. HILL at Massachusetts Institute of Technology.)

Proton and Neutron Sources; high voltage experiments. (With I. A. GETTING at Harvard.)

Umwandlung von Bor durch langsame Neutronen. (Based on work done at Heidelberg, Germany.)

Construction of a 3,000,000 volt electrostatic tank generator in collaboration with A. E. RUARK; and experiments on photo-disintegration of nuclei with this generator.

R. H. LYDDANE is continuing research begun at The Johns

Hopkins University, before he joined the staff of this University, on:

Energy Levels of the Benzene Molecule (in collaboration with A. L. SKLAR).

Certain Higher Energy Levels of the Hydrogen Molecule.

He is planning to investigate:

Collisions of Elementary Particles.

MR. HERMON PARKER has continued his work with DR. WHEELER on the application of the method of resonating group structure to the interaction between two deuterons.

During the summer DR. SHERWOOD GITHENS of Wake Forest College worked on the striking voltage in hydrogen at radio frequencies and has a paper ready for publication.

The following doctoral dissertations were accepted:

GEORGE EDWARD CROUCH, JR. The Infrared Absorption Spectrum of Nitrobenzene-Benzene and Ethyl Alcohol-Benzene Mixtures. (Under the direction of EARLE K. PLYLER.)

Infrared absorption spectra at high resolution were obtained for pure benzene, pure nitrobenzene and mixtures of fourteen, twenty, thirty-three, fifty and seventy-five per cent nitrobenzene in benzene together with mixtures of nine, fourteen, thirty-three, fifty and sixty per cent ethyl alcohol in benzene in the region from 6.4μ to 8.0μ. In the region from 1.9μ to 2.8μ the absorption spectra of pure benzene and pure nitrobenzene as well as mixtures of twenty, thirty-three, forty, fifty, sixty and eighty per cent nitrobenzene in benzene were studied.

It was found that the coefficient of absorption of nitrobenzene for the 6.63μ band when present in mixtures with benzene changes in value as the concentration of the nitrobenzene changes. The coefficient of absorption was much greater in dilute solutions than in concentrated solutions and its value decreased rapidly as the concentration increased in general agreement with results given by Debye for the polarization of nitrobenzene-benzene mixtures.

In the region from 1.9μ to 2.8μ the change in the coefficient of absorption per unit concentration of nitrobenzene in benzene was studied in the bands at 2.17μ, 2.29μ, 2.33μ, 2.51μ. It was found that the coefficient of absorption of nitrobenzene in mixtures was greater than the coefficient of absorption of pure nitrobenzene in the 2.33μ and 2.51μ bands and less in the 2.19μ and 2.29μ bands. In all the bands the absorption coefficient of nitrobenzene tended towards a minimum for the fifty per cent mixture of nitrobenzene and benzene.

These results show that the change in the total polarization of a substance is related to the change in the coefficient of absorption that takes place in the absorption bands. These results are shown by graphs and tables.

MARY WILMA HODGE. The Statistical Behavior of Geiger-Muller Tube Counters. (Under the direction of ARTHUR RUARK.)

An automatic method for studying the statistical behavior of Geiger-Muller tube counters is discussed. A study of two argon counters, excited by gamma rays, and of one hydrogen counter, excited by gamma rays and by light, was made at different voltages and at counting rates varying from 1 to 2.3 counts per second. A total population of 562,000 intervals was studied. The total number, N, of intervals between counts, and the number, P, greater than a chosen interval t, were automatically registered and the ratio P/N was tabulated. The theoretical value of P/N was calculated according to Bateman's law on the assumption that the counter has a constant efficiency and constant recovery time,—and was compared with the experimental value. A study of the statistical behavior of one argon counter over short periods of time was made for a population of 53,380 intervals. This showed that the statistical conclusions from experiments involving 10,000 to 50,000 intervals were not false ones due to mere averaging-out of short period deviations different from those expected from Bateman's law.

The argon filled counters, operating at voltages well above threshold and excited by gamma rays, yield counts distributed in time in close accord with expectations from theory. The deviations from theoretical behavior are of the order of one per cent. The hydrogen filled counter, excited by gamma rays or light, deviated more than four per cent from theoretical behavior, this amount being more than can be reasonably explained on the basis of instrumental errors and statistical fluctuations.

CREIGHTON CLINTON JONES. Energy Loss in the Nuclear Scattering of Electrons in the Energy Range from 0.3 to 2.6 Million Electron Volts. (Under the direction of ARTHUR RUARK.)

Even in nitrogen, multiple scattering in the gas is a dominant factor in cloud-chamber work on the energy-loss of electrons scattered by nuclei and having initial energy in the range 0.3 to 2.6 MEV. Nevertheless it is possible, by making allowance for this effect, to get a rough measure of the radiative loss. Our experimental results for the probability of a fractional loss of kinetic energy greater than 20 per cent are higher than those predicted by application of the loss formulas of Bethe and Heitler, and the scattering formula of Mott. They are, however, closer to the theoretical values than the results of other observers.

KATHARINE WAY. Photoelectric Cross Section of the Deuteron. (Under the direction of JOHN A. WHEELER.)

The cross section values for the photoelectric disintegration of a deuteron into a neutron and proton, which are predicted by three different types of potentials, V, are compared. The three potential types considered are the only ones which up to the present have been shown able to account for the binding energies of the nuclei H^2, H^3, and He^4. These are (1) the square hole ordinary, (2) the "bell-shaped" Majorana-Heisenberg, and (3) the velocity dependent type. In each case the values of the constants used are those which have been determined as best for accounting for the binding energies of the nuclei mentioned above. Calculations for the square hole have already been made by Breit, Stehn, and Condon; and for reasons stated the calculations quoted are for a square hole Majorana type potential rather than for the square hole ordinary type defined above. The calculations for the other two potentials are reported in this paper.

Results show that the cross section values for potentials (2) and (3) differ considerably from (1) but very little from each other.

A general formula for the integral of the cross section over all energies of the incident light quantum is derived.

The addition of a long range repulsive force to the velocity dependent interaction is found to decrease the cross section for this potential type considerably. The classical equivalent of the velocity dependent potential operator is determined.

JAMES WILSON WHITE. The Infrared Absorption of Phenol and Ethyl Alcohol. (Under the direction of EARLE K. PLYLER.)

An infrared absorption spectrum analysis with high resolution was made of ethyl alcohol, phenol, one, five, and ten molar solutions of phenol in ethyl alcohol, together with one and seven molar solutions of phenol in carbon disulfide and a five molar solution of phenol in ethyl alcohol containing five per cent of water. The region observed was from 6.35μ to 12.44μ. These materials have not been studied previously with a spectrometer of high resolving power in this region. Although the bands observed in this region show slight changes with concentration, there is observed no marked effect of association between the molecules. Also, the solution of phenol in very different solvents, such as ethyl alcohol and carbon disulfide, shows no appreciable effect on its absorption bands. The effect of water on the solution of phenol in ethyl alcohol is very slight, there being a small shift in position and intensity of some of the bands, with greater transmission in the regions between the bands. Four figures are given showing the absorption spectra of the materials mentioned, together with a table of the more intense bands of ethyl alcohol and phenol. The more important bands are located at 7.18μ, 9.40μ, and 11.22μ in alcohol, and at 6.69μ, 7.91μ, 9.21μ, 11.14μ, and 12.20μ in phenol.

DEPARTMENT OF PHYSIOLOGY

H. WARD FERRILL has the following research in progress:

1. The Effect of Insulin on Growth when Given to Four Succeeding Generations of White Rats.

2. The Effect of Experimental Chronic Hyperinsulinemia on the Cytology of the Adrenal Glands, the Liver, Pancreas, Pituitary, and Gonads.

DEPARTMENT OF POLITICAL SCIENCE

WILLIAM W. PIERSON has completed for publication the following articles:

Recent Interpretations of the Monroe Doctrine in the United States.

Dictatorship in South America.

The Establishment and Early Functioning of the *Intendencia* of Venezuela.

PROFESSOR PIERSON is directing the following research:

JOHN H. WILLIAMS. The Rise and Decline of the Contract Theory in the United States. (Progress on doctoral dissertation.)

W. S. JENKINS has continued his research on the amending provision of the Federal Constitution. During the fall of 1937 he was on Kenan leave working in the large collections of public documents of the States in Washington, New York, and Boston. During the fall of 1938, with the aid of a grant from the Social Science Research Council, he will work through the manuscript papers of Congress and the correspondence of the Department of State in the Library of Congress and at the National Archives. While in Washington, he will act as a special consultant to the assistant of the Solicitor General in charge of the Child Labor Amendment cases which are pending before the Supreme Court.

Research done by Mr. Jenkins over the past three years has led to the locating of complete files of the session laws and legislative journals of all of the states since the ratification of the Constitution in 1788. His work looks toward the build-

ing up at Chapel Hill of the most complete collection of public documents to be found in the south. Already, with the collaboration of Mr. W. W. SMILEY of the library staff, and with the support of the Smith fund, many unique public documents have been microfilmed.

JAMES W. FESLER was on leave of absence during the academic year 1937-1938, during which he completed the field work for a study of the independence of state regulatory agencies.

PAUL W. WAGER continued to serve as Chief of the Land Use Planning Section, Bureau of Agricultural Economics, Region IV, until June 30, 1938, most of the time on a part-time basis. The principal research completed during the year under his direction was a regional planning study of Cherokee County, North Carolina. The Tennessee Valley Authority and the U. S. Forest Service coöperated with the Bureau of Agricultural Economics in this study. The report is now being reviewed with the idea of publication by the U. S. Department of Agriculture.

MR. WAGER is now working with MR. MAUCK on the governmental aspects of a regional planning study of the Piedmont section of North Carolina and Virginia, sponsored by the Institute for Research in Social Science.

ELWYN A. MAUCK has in preparation a study of governmental problems in an area embracing thirteen counties and centering about Chapel Hill. This study is part of a more comprehensive project under the direction of the Institute for Research in Social Science.

The following master's thesis was accepted by the Department during the year:

WILLIAM ST-JOHN BLACKSHEAR. Efforts and Achievement in the Codification of International Law by the American States Since the World War. (Under the direction of KEENER C. FRAZER.)

This is a systematic study of the process employed by the American states in the codification of international law, with an especial emphasis

upon the technique used in the process. It endeavors to show in a chronological order the efforts of the American states at the codification of international law since the World War, with especial attention to such international law as is peculiarly applicable between the American states. It traces in detail the use of unofficial, scientific organizations in conjunction with the official juridical bodies established for the purpose of codification by the International Conferences of the American States. It traces the methods tried and records the success or failure resulting therefrom; and it endeavors to show how the experience of the American states in their effort to solve the problems of codification has developed a set of tentative rules for the codification of international law based upon the principle of "progressive codification." It also presents a summary of the achievements of the American effort at codification.

The codification of international law is as yet in the experimental stage, and therefore no very definite conclusions precisely stated can be advanced. This study, however, is made to demonstrate the path that has been followed by the American states since the World War. Their efforts have, it is believed, for the first time in the world's history, actually produced a portion of international law in codal form.

DEPARTMENT OF PSYCHOLOGY

J. F. DASHIELL has published:

Affective Value-Distances as a Determinant of Esthetic Judgment - Times (with the assistance of SYBILLE BERWANGER). *American Journal of Psychology,* Golden Jubilee Volume, December, 1937. Also read before Section I, American Association for Advancement of Science, December 27, 1937.

PROFESSOR DASHIELL has continued as editor of the series *Publications in Psychology.* New York: McGraw-Hill Book Company.

He has continued as editor of *Psychological Monographs,* one of the six official journals of the American Psychological Association.

He has continued as an associate editor of the *Journal of Psychology.*

J. F. DASHIELL has delivered the following addresses:

Revisions of our Conceptions of Learning Demanded by Re-

cent Experimental Findings. Annual address before Virginia Academy of Science, May 7, 1938.

Converging Approaches to the Psychology of Personality, before the Section of Psychology, Virginia Academy of Science, May 7, 1938.

Some Rapproachments in Contemporary Psychology. Presidential address before American Psychological Association, Columbus, Ohio, September 9, 1938.

A. G. BAYROFF has prepared for publication:

Air Blasts as Substitutes for Electric Shock in Discrimination Learning.

Previous analysis of the data obtained showed that animals meeting electric shocks in the incorrect alley learned the discrimination in as many trials as did animals meeting air blasts. However, further analysis revealed that there were significant differences in the number of entries into the incorrect alley. These data suggest that the discrimination habit is, as are other habits, hierarchical, and that the negative stimulus (air blasts, electric shocks) affects more elementary habits but not necessarily the essential discriminating habit.

PROFESSOR BAYROFF has completed his second study of The Experimental Social Behavior of Animals: The Effect of Early Isolation of White Rats on Competition in Swimming.

Two sets of white rats, one reared in individual cages, the other reared in groups, were forced, one at a time, to swim under water and against the current. The animals were then paired, each pair containing one animal reared in isolation with an equally fast socially reared animal. Each pair was made to swim, the animal reaching the exit first being allowed to escape into the air. The second animal was trapped under water for a short time before it was permitted to escape.

The question was, which of two equally fast swimmers would win over the other, the socially reared animal or the one reared in solitude?

The results indicated that the number of victors reared in solitude was equal to the number of socially reared victors. In a small number of pairs, neither member won consistently. It thus appears that in this experiment the nature of the early life is not the principal determiner of successful competition.

The data are being analyzed to determine the influence of such factors as weight, sex, etc., on success, and the relationship between competition and swimming speeds.

PROFESSOR BAYROFF has revised the laboratory experiments used in the introductory course in Psychology. The manual is being published in mimeographed form by the Book Exchange of the University.

ALBERT C. CORNSWEET has completed the following studies:

Recovery Sequence after Anaesthetization: I. Ethyl Ether. *Journal of Comparative Psychology,* October, 1938. (Read before American Association for Advancement of Science, December, 1937.) (Under the direction of J. F. DASHIELL.)

White rats upon recovery from anaesthetization exhibited progressive cephalo-caudad behavioral tendencies, bearing a similarity to the developmental sequence of locomotion noted in post-natal behavioral studies. This study did not place undue emphasis upon each discrete "reflex," but concerned itself with the order in which behavior sequences and patternings appeared, since this recovery sequence portrayed the animals as coördinating functioning organisms, every part of which must assist structurally and functionally in this progressive behavior. Equally as salient is the fact that the animals upon original anaesthetizating exhibited caudo-cephalad behavioral patternings.

Recovery Sequence after Anaesthetization: II. Cyclopropane and Nitrous Oxide. *Journal of Comparative Psychology,* December, 1938. (Read before National Academy of Science, October, 1938.) (Under the direction of J. F. DASHIELL.)

White rats when undergoing anaesthesia induced by cyclopropane and by nitrous oxide, and when recovering therefrom, showed the same sequence of motor loss and of motor recovery as had been observed in connection with ether anaesthesia.

MR. CORNSWEET and PROFESSOR H. W. CRANE have prepared film studies on Recovery Sequence after Anaesthetization, for general circulation.

MR. CORNSWEET has in progress the following research:

Recovery Sequence after Anaesthetization:

III. Vaporization of Alcohol.

IV. Control of Carbon Dioxide and Oxygen.

HALSEY M. MACPHEE is continuing the study of Selection and Elimination in Learning a Punch Board Maze with Shock,

Buzzer, and No Signal. (Under the direction of J. F. DASHIELL.)

Data from six groups of subjects are being analyzed in order to study the relative influence of the different stimuli on the efficiency of learning.

The following doctoral dissertations were accepted during the year by the Department:

HARRY VOORHIES BICE. A Study in Word Association. (Under the direction of HARRY W. CRANE.)

Words assumed to be of two types were chosen and arranged in a Word Association Test. Fifty of these words were chosen because it was thought they would arouse memories of personal experiences, fifty because it was thought they would not. The test was administered to one person at a time until a total of 1200 was reached. Two hundred of these were Negroes.

The responses have been compiled into a set of Frequency Tables which are offered as a standard to which other work may be compared. On an experimental basis, rules were formulated which enable one to judge the value of responses that do not appear in the Tables. An experimentally determined appendix to the Frequency Tables has been composed.

Two lines of evidence indicate that the words are of the two types that were assumed. The evidence is found in the commonality values of responses and the results of chain associations.

Comparisons make it clear that a frequency table made twenty-five years ago with a mixed group of subjects is an unsatisfactory standard with which to compare the responses of college students today.

A study of the verbal forms of the responses indicates that: if a stimulus is a noun and is rarely used in any other capacity, seventy-five per cent of the responses will be nouns. If the stimulus is a verb, the same percentage of verb responses will be found. The percentage of adjective responses to adjectives is but slightly lower. If a stimulus is used often as a noun but frequently also as a verb, an increased number of verbs will be found in the responses.

A comparison was made for those responses by white and Negro in which a color was named. Both were compared to experimentally determined color preferences. The order of frequency with which each color is named is the same for white and Negro if three words are omitted. These are *white*, *yellow* and *black*, each of which has definite significance for the Negro in his race relations.

Studies of the response time, of the usualness or unusualness of responses, and of logical classification of responses indicate that white subjects adapt themselves to the experiment better than do the Negroes. White subjects also react in a less personal manner than Negroes.

HERMON WILKES MARTIN. Effects of Practice on Judging Various Traits of Individuals. Under the direction of J. F. DASHIELL.)

The Problem. The immediate concern of this investigation has been to determine whether the validity of estimates of certain complex traits of individuals, as well as of certain simpler and more objective characteristics, may be improved by the method of practice and correction. In its broader significance the problem involves the question of the possible effects of practice upon judgments from obscure clues.

Previous investigations along the line of rating individuals have been confined to determining the extent of agreement that might be found among a number of raters, or between some measure of a group of individuals and a single try-out of ratings of them, without any attempt to improve such estimates by practice.

The Experimental Set-Up and Procedure. A series of five measurable, distinct traits, affording a wide range of complexity and objectivity, was selected for experimental practice, namely, (1) height, (2) weight, (3) age, (4) introversion-extroversion, (5) intelligence.

Judgees were introduced singly to the assembled judges, were measured for height and weight, and finally were seated beside the interviewer's desk while answering six to ten commonplace questions, remaining always in the sight and hearing of the judges. Presentations lasted five to eight minutes, during which the judges made quantitative ratings on graphic scales with respect to each of the five traits. As soon as a judgee left, corrections were handed to those judges scheduled to receive them. The measures of intelligence and of introversion-extroversion were made prior to the observation-interview period.

In two experiments, the individuals judged were all students in a school of commerce which required high school graduation for admission. In a third experiment, all were pupils in a high school. The subjects, or judges, were largely members of university classes in psychology.

Results. 1. Typical trial-and-error learning curves are found for each of the traits tried.

2. Correlations: (a) Between amounts of practice and of error substantiate the appearance of the curves. (b) Between estimates and measures indicate a general though not a striking improvement in later judgments as compared with earlier, the coefficients not being so high for the complex as for the simpler traits, but the amount of improvement for the complex traits being fully as great. (c) Between one half of the judges and the other half, for reliability of estimates in later periods of practice as compared to earlier, all manifest increased agreement, especially for the corrected judges.

3. Graphs, sampling the distributions of judgments, together with the standard deviations in amounts of error, show much greater dispersion

in judgments of a complex trait, such as intelligence, than for a simple trait, such as height, with a tendency to reduction in the variability in either case, as practice proceeds.

4. It appears, then, that on a basis of brief observation and interview, appreciable improvement may be effected in judging some of the psychological traits, as well as some of the more objective physical features of individuals, when such estimates are regularly practiced and checked by standard measures.

DOROTHY RETHLINGSHAFER. Behavior of Feebleminded and Normal Subjects Following the Interruption of Activities. (Under the direction of J. F. DASHIELL.)

638 records of child behavior following interruption in eleven different activities were classified into seventeen categories of behavior. These categories were then converted into a normal scale of tendency-to-continue. By means of scores obtained from this scale the effect of varying conditions of interruption and of different barriers raised against continuing were studied.

According to the scores from the scale twenty-nine feebleminded subjects were not any greater in their goal fixation than twenty-nine normal subjects of the same mental ages (six years to nine years, eleven months), a finding which is contradictory to Lewin's interpretation of the personality of the feebleminded child. The normal subjects were found more frequently at the positive end of the scale while the feebleminded were distributed toward the lower end. Although only two differences of means of the eleven measures of tendency-to-continue had critical ratios of over three, the feebleminded were consistently lower in all mean scores except one. Reliability coefficients were .85 for the combined groups, .87 for the feebleminded, and .89 for the normal subjects.

DAVID KIRBY SPELT. The Establishment of a Conditioned Response in the Human Fetus *in Utero*. (Under the direction of J. F. DASHIELL.)

Using patients selected from a pre-natal obstetrical clinic, it has been possible to condition the human fetus *in utero*. The unconditioned stimulus was a loud noise; the conditioned stimulus was vibrotactile, applied to the maternal abdomen. Fetal position was determined by two X-ray photographs of each patient's abdomen, supplemented at the beginning of each experimental session by external manual examination and, if necessary, by fetal heart sounds. It was thus possible to place one pair of receiving tambours over the fetal head, one pair over the fetal arms, and one pair over the fetal legs. Maternal breathing was recorded with the newly-developed Manning pneumograph. These instruments were connected to ink-writing recording tambours tracing on a long-paper

kymograph. In addition, the records include a maternal voluntary signal, made whenever fetal movement was felt; the occurrence of stimulation; and a time line, marked in five-second intervals.

The data show specifically that:

(1) In three cases the conditioned response was established, during the last two months of gestation, in approximately 100 paired stimulations, with individual differences.

(2) In one of these cases the response was retained over an interval of three weeks.

(3) In two other cases the response was partially established but the onset of labor precluded further work.

(4) The conditioned response was subject to experimental extinction and showed spontaneous recovery.

(5) The conditioned stimulus was shown to be ineffective, even in the last month of pregnancy, when it is employed alone without ever being paired with the unconditioned stimulus.

(6) Records from non-pregnant control cases subjected to the same stimulation bear no resemblance to those resulting from fetal movements.

(7) The unconditioned stimulus is ineffective prior to the eighth fetal month.

(8) The unconditioned stimulus thus becomes effective at the time when histological studies have shown that certain auditory neural mechanisms acquire their myelin sheaths and (presumably) become functional.

The following master's theses were accepted during the year by the Department:

EDIT GLASER. Distribution of Errors Made By White Rats on an Elevated Maze Before and After Rotation. (Under the direction of A. G. BAYROFF.)

Forty white rats were trained on an elevated maze in two groups. It was found that the distribution of errors before and after rotation of the maze had a positive high correlation (average .60). A marked change was noticeable only as a relative increase of errors in those blinds which after rotation came nearest to the place where the food had previously been, which indicated an interference in the habits of goal orientation when the maze is rotated.

The underlying factors were investigated by maze analysis and by testing association of theoretical and experimental findings with the contingency method.

MARGARET ERWIN ROBINS. Reminiscence in the Learning of a Punch Board Maze. (Under the direction of J. F. DASHIELL.)

The purpose of this experiment was to determine the presence or absence of reminiscence in the learning of a punch board maze. The maze used was a copy of that employed by Tolman, Hall, and Bretnall. Sixty-two students from elementary psychology laboratories served as subjects. They were divided into two groups: a control group who took successive trials on the maze and an experimental group who were interrupted for a period of twenty-four hours between the fourth and fifth trials. Control and experimental subjects were compared in terms of group scores and in terms of scores of those subjects who improved on the fifth trial. The comparisons were made both with respect to scores on trial five and to total scores. The validity of the use of scores on no more than two trials and of the use of scores of only those subjects showing improvement is questioned. There is no evidence of reminiscence.

DIVISION OF PUBLIC HEALTH

M. J. ROSENAU has the following research in progress:

A Study of Sudden Death from Horse Serum.

HERMAN G. BAITY has published:

Some Factors Affecting the Aerobic Decomposition of Sewage Sludge Deposits. *Sewage Works Journal,* Volume X: 3. May, 1938.

Textile Waste Treatment. *American Dyestuff Reporter,* Volume 27: 20. 1938. Presented as a paper before Piedmont Section, American Association of Textile Chemists and Colorists, Greensboro, N. C., May 7, 1938.

PROFESSOR BAITY has directed the research leading to the following publications:

Treatment of Sulfur Dye Waste by the Activated Sludge Process, Part I, by HENRY J. MILES and RALPH PORGES. *Sewage Works Journal,* X:2. 1938.

Treatment of Sulfur Dye Waste by Activated Sludge Process, Part II, Further Studies of Optimum Operating Conditions, by HENRY J. MILES and RALPH PORGES. *Sewage Works Journal,* X:5. 1938.

Textile Waste Research in North Carolina, by HENRY J. MILES and RALPH PORGES. Presented before Piedmont Section, American Association of Textile Chemists and Colorists, May 7, 1938, and accepted for publication in *American Dyestuff Reporter.*

PROFESSOR BAITY and MR. E. M. BROADHURST have continued the study, begun last year, of factors affecting the dewatering of digested sewage sludge on sand beds. The effects of sunlight, temperature, humidity, air movement, rainfall, size and uniformity of sand, depth of filtering medium, depth of applied sludge, glass covers, and degree of digestion have been further investigated; and studies are now in progress to determine the cause of filter binding, the effect of chemical conditioning of the sludge, and the economy of sub-surface heating of sand drying beds.

PROFESSOR BAITY is directing the following research:

HENRY J. MILES and RALPH PORGES. The Effects of Textile Waste Liquors on the Biological Processes of Sewage Sludge Digestion.

RALPH PORGES and ROBERT K. HORTON. The Treatment of Textile Processing Wastes by High Rate Biological Filters.

RALPH PORGES and ROBERT K. HORTON. The Treatment of Textile Wastes by Chemical Precipitation.

H. W. BROWN has completed:

Ineffectiveness of Sulfanilamide in the Treatment of Canine Filariasis. *Proceedings of the Society of Experimental Biology and Medicine.* (In press).

Observations on the dog heartworm (*Dirofilaria immitis*). *North American Veterinarian* (In press).

The Problem of Malaria Mortality in the United States; a manuscript.

PROFESSOR BROWN has the following research in progress: Studies on the relationship between hookworm and malaria.

Studies on the biology of dog heartworm (*Dirofilaria immitis*). (With A. J. SHELDON.)

Studies on the epidemiology of the human pinworm (*Enterobius vermicularis*).

A County-wide parasite survey of the population of Orange County. (With A. J. SHELDON.)

HAROLD B. GOTAAS has the following research in progress:

Studies on the Use of Streptococci and Staphlococci as Index Organisms of Swimming Pool Safety.

An Investigation of Methods for the Control of Algal Growths on Walls of Swimming Pools.

The Use of Clay as a Coagulant Aid in Water Treatment.

The Use of Property Ledgers in Municipal Government.

A. J. SHELDON has published:

Johns Hopkins University, School of Hygiene and Public Health, Baltimore, Md.

1. Studies on Routes of Infection of Rats with *Strongyloides ratti. American Journal of Hygiene,* 26: 358-373. 1937.

2. Infection of an Abnormal Host (Guinea-pig) with *Strongyloides ratti. American Journal of Hygiene,* 27: 298-300. 1937.

University of Michigan Biological Station, Cheyboygan, Michigan.

1. Studies on the Life Cycle of *Maritrema medium* (Trematoda) and a Redescription of the Species. *Journal of Parasitology,* 24: 259-262. 1938.

University of Oklahoma, School of Medicine, Oklahoma City, Oklahoma.

1. Specificity of Artificial Acquired Immunity to *Strongyloides ratti. American Journal of Hygiene.* In press.

DR. SHELDON has in progress (with DR. H. W. BROWN):

Studies on the biology and treatment of *Dirofilaria immitis,* the dog heart worm.

Survey of intestinal parasites of persons in Orange County, North Carolina.

DEPARTMENT OF ROMANCE LANGUAGES

WILLIAM M. DEY is continuing his studies on Stendhal and Alfred de Vigny.

PROFESSOR DEY is directing the following research:

J. A. DOWNS. (Progress on doctoral dissertation.) The Development of Lyric Poetry in France, 1790-1820.

ALFRED G. ENGSTROM. (Progress on doctoral dissertation.) The Artistic French Short Story, 1830-1900.

R. G. LEWIS. The Symphonic Technique in Proust. (Progress on master's thesis.)

STURGIS E. LEAVITT has published:

Theses Dealing with Hispano-American Language and Literature—1937. *Hispania,* XXI, 111-113. 1938.

Spanish America. Language and Literature: The National Period. *Handbook of Latin American Studies.* Cambridge: Harvard University Press. 1937, pp. 306-336.

Education for a Changing World. *South Atlantic Bulletin,* IV: 1. April, 1938.

¡Vamos a Leer! New York: Henry Holt and Company. 1938. Pp. VII, 237, LVIII. (With STERLING A. STOUDEMIRE.) (An elementary Spanish reader.)

He continues as editor of the *South Atlantic Bulletin,* as associate editor of the *Hispanic Review,* and as contributing editor to the *Handbook of Latin American Studies.*

He is working on a bibliography of biography and literary criticism in Spanish America; and (with others) on an index to the literary materials in the principal magazines in Latin America.

PROFESSOR LEAVITT is directing the following research:

E. D. TURNER. Some Aspects of the Dramatic Art of Quiñones de Benavente.

U. T. HOLMES, JR. has published the following:

Old French *esterminals. Speculum:* XIII: 78-79. January, 1938.

Old French *Mangon,* Anglo-Saxon *Mancus,* Late Latin *Man-*

cussus, Mancosus, Mancessus, etc., PMLA LIII: 34-37. March, 1938.

(With A. H. SCHUTZ) *A History of the French Language.* New York: Farrar and Rinehart. 1938.

(With J. C. LYONS and R. W. LINKER) *The Life and Works of Du Bartas,* Vol. II. Chapel Hill: The University of North Carolina Press. 1938.

PROFESSOR HOLMES continues on the editorial boards of *Speculum* and *Studies in Philology.*

He has in press:

(With J. C. LYONS and R. W. LINKER) *The Works of Du Bartas,* Vol. III.

He has completed:

Chaucer's *Trophee.*

Chernubles in the *Chanson de Roland.*

Berthe aus grans piés, an edition of the Old French epic to be published by the "Classiques français du Moyen Age" series (Paris, France).

PROFESSOR HOLMES has begun work (with A. H. SCHUTZ) on a source book to accompany the *History of the French Language.*

PROFESSOR HOLMES is directing the following research:

G. C. S. ADAMS. A Study of the Variants of *Domina* and *Femina* in the French and Provençal Dialects. (Progress on doctoral dissertation.)

R. D. WHICHARD. A study of the Norman Dialect of Old French. (Progress on doctoral dissertation.)

E. D. HEALY. An Edition of the Works of Lanfranc Cigala. (Progress on doctoral dissertation.)

CAREY DEWITT ELDRIDGE. Literary Patronage at the Court of Champagne. (Progress on doctoral dissertation.)

SAPELO TREANOR. An Edition of the Old French *Sydrac.* (Progress on doctoral dissertation.)

E. F. MOYER. A study of the *Perceforest.* (Progress on doctoral dissertation.)

W. B. NAPIER. A Study and Edition of *Ciperis de Vignevaux.* (Progress on doctoral dissertation.)

ALBERT L. D'ELIA. A Bibliography of Italian Dialect Dictionaries. (Progress on master's thesis.)

R. B. FREEMAN. Literature at the Court of Charles V of France. (Progress on master's thesis.)

HENRY HOYT HILTON. An edition of the Anglo-Norman *Seth.* (Progress on master's thesis.)

W. R. LANSBERG. A Systematic Classification of the Romance Words of Unknown *etyma.* (Progress on master's thesis.)

(With R. S. BOGGS.) ANDREW HENRY YARROW. A Folk-theme Classification of the Old French *fabliaux.* (Progress on master's thesis.)

NANCY AVERITT. An Edition of the Anglo-Norman *Life of Judas.* (Progress on master's thesis.)

NICHOLSON B. ADAMS has published:

Lecturas Modernas. New York: F. S. Crofts and Company. 1938. 176 pp. (With EDWIN B. PLACE.)

PROFESSOR ADAMS is engaged upon a history of Spanish culture.

J. C. LYONS has published:

The Life and Works of Du Bartas, Vol. II. Chapel Hill: University of North Carolina Press. 1938. (In collaboration with U. T. HOLMES, JR. and R. W. LINKER.)

Volume III of the above work is now being prepared for the press and will appear in 1939.

During the spring of 1938, PROFESSOR LYONS read before the Philological Club the following paper:

Life and Customs in Sixteenth-century France as Seen in the "contes" of the Time.

PROFESSOR LYONS is directing the following doctoral dissertation:

J. W. HASSELL. A Study of the French Short Story in the Sixteenth Century. (Progress on doctoral dissertation.)

HERMAN STAAB has published:

(With HUGO GIDUZ) *Contemporary French Readings in Commerce, Economics, History and Sociology.* Mimeographed, Chapel Hill, 1938.

PROFESSOR STAAB has in preparation a textbook of the same type as that listed above. He is also preparing a textbook on Commercial French.

R. S. BOGGS has published:

The article on "Geld" in the *Handwörterbuch des deutschen Märchens,* II: 465-478.

An encyclopedic survey of money in the world's folktales, with 168 citations.

Spanish Folklore from Tampa, Florida. I: Background. *Southern Folklore Quarterly,* I: 3: 1-4. 1937.

Spanish Folklore from Tampa, Florida. II: Riddles. *Southern Folklore Quarterly,* I: 3: 4-12. 1937.

Spanish Folklore from Tampa, Florida. III: Una ledi de Naso. *Southern Folklore Quarterly,* I: 4: 9-13. 1937.

Spanish Folklore from Tampa, Florida. V: Folktales. *Southern Folklore Quarterly,* II: 87-106. 1938.

Materials for Nos. IV and VI in the Tampa series, on superstitions and folk music, were turned over by PROFESSOR BOGGS to PROFESSOR HAUPTMANN, of the University of Florida, and PROFESSOR SCHINHAN, of the University of North Carolina, for preparation, to be published in the same periodical. This practically completes publication of the materials brought back by PROFESSOR BOGGS from his Tampa folklore expedition in June, 1936.

Aided by a grant of travel money from the Smith Research Fund of the University of North Carolina, PROFESSOR BOGGS spent June to August, 1938, on a folklore expedition to Mexico. He worked on a bibliography of Mexican folklore, which will be ready for publication by 1939, and which he has been asked to publish in the *Boletín bibliográfico* of Mexico City. At the July meeting of the *Sociedad mexicana de antropología* he gave a lecture on "El estado actual de los estudios folklóricos en Méjico," in which he analyzed its shortcomings and made

certain recommendations. Following one of these, a *Sociedad mexicana de folklore* was established, shortly after his return to this country, and has been meeting in the National Museum in Mexico City. A small amount of folklore was gathered by PROFESSOR BOGGS, and he made arrangements in various states with officials of the Department of Education to gather more material through the public schools. For this he provided a questionnaire.

He has made his annual folklore bibliographies for the *Volkskundliche Bibliographie, PMLA,* the *Handbook of Latin American Studies,* and has this year initiated a fourth, in the *Southern Folklore Quarterly.*

The Modern Language Association of America has taken up the Old Spanish Dictionary Project, appointing a committee for this purpose in its Old Spanish group. PROFESSOR BOGGS now continues this project as a member of this committee, rather than independently as heretofore, pooling his twenty odd thousand cards with the work of other members of the committee.

He continues alone his general bibliography of folklore and of the language and literature of Spain and Spanish America. The grand total of cards is fast approaching two hundred thousand. He invites all interested scholars to consult this bibliography.

He continues work on his Spanish Phonology and, with F. C. HAYES, on the Spanish proverb project.

STERLING A. STOUDEMIRE has continued work on The Influence of Italian Opera on the Romantic Drama in Spain.

PROFESSOR STOUDEMIRE has in preparation:

English translation and edition of Ganzalo Hernández de Oviedo's *Sumario de la natural historia de las Indias.*

He has published:

In collaboration with S. E. LEAVITT, *¡Vamos a Leer!* New York: Henry Holt and Company. 1938.

Placement Tests in Spanish, *Modern Language Journal,* XXI: 8: 593-596. 1937.

He is directing the following doctoral dissertation:

W. A. MCKNIGHT. The Vogue and Influence of Scribe in Spain. (Progress on doctoral dissertation.)

W. L. WILEY is preparing for *Studies in Philology* a bibliography of recent scholarly activities in the French Renaissance (in collaboration with PROFESSOR SAMUEL F. WILL of the University of Illinois).

PROFESSOR WILEY has ready for publication an article, The Critical Theories of Charles Fontaine.

He is directing the following research:

MRS. E. L. MUELLER. Jean Mairet's Use of the Classical Unities. (Progress on master's thesis.)

F. C. HAYES has published:

The Use of Proverbs as Titles and Motives in the *Siglo de Oro* Drama. *Hispanic Review,* VI: 305-323. 1938. Two sequels are to follow soon.

DR. HAYES is continuing his work on the *Diccionario Histórico de los Refranes Españoles,* aided by the Smith Research Fund and the N. Y. A., in collaboration with R. S. BOGGS. So far about 115,000 items have been accumulated with a total of 65,000 proverbs.

L. L. BARRETT has the following in press:

The Supernatural in Juan de la Cueva's Drama. (To appear shortly in *Studies in Philology.*)

He has completed:

Character *versus* Omens in Lope de Vega.

He has in progress:

Omens and Divination in Guillén de Castro's Plays.

Romansch *stover,* Old French *estovoir.*

A Tentative Revision of *comedia* Titles in "Indice de títulos," C. A. de la Barrera y Leirado's *Catálogo bibliográfico y biográfico del teatro antiguo español, desde sus orígenes hasta mediados del siglo XVIII.* (With W. R. WEAVER.)

W. R. WEAVER has the following in progress:

Some Aspects of Multiple Curtain Technique in the Golden

Age Drama.

Offstage Effects in the *Siglo de Oro* Theater.

A Tentative Revision of *comedia* Titles in "Indice de títulos," C. A. de la Barrera y Leirado's *Catálogo bibliográfico y biográfico del teatro antiguo español, desde sus orígenes hasta mediados del siglo XVIII.* (With L. L. BARRETT.)

The following doctoral dissertations were accepted by the Department during the year:

LINTON LOMAS BARRETT. The Supernatural in the Spanish Non-Religious *comedia* of the Golden Age. (Under the direction of S. E. LEAVITT.)

This is a study of the supernatural devices used in one hundred and fifteen representative *comedias* of the *Siglo de Oro*, selected from over nine hundred printed plays from the time of Juan de la Cueva to the death of Calderón. Magic, a black art, and astrology, a science, are omitted, since they differ widely from other types of the supernatural and therefore should receive separate treatment.

Juan de la Cueva uses the supernatural freely but awkwardly. Less use of it is found in other pre-Lope de Vega dramatists, who are hardly more skillful than Cueva, even in isolated examples. In Lope de Vega technical skill in handling the supernatural reaches its peak, and in Guillén de Castro an equal degree of excellence appears in certain types. In Tirso de Molina the supernatural is poorly developed except in two plays, at least one of which has probably been reworked in its present form. Tirso shows surprisingly little care in this field. Alarcón affords scarcely an instance of the supernatural, and the other contemporaries of Lope fail to maintain the master's standards. Calderón's supernatural devices are the poorest of the whole period, and his contemporaries excel him only in isolated instances. In short, the supernatural improves tremendously from Cueva to Lope and Castro, appears at its best in Lope, and declines steadily to the death of Calderón.

A considerable difference between the various authors' manner of using the supernatural has been noted. It seems therefore that if considered with other criteria, the handling of the supernatural might be used as a partial basis for establishing the authorship of certain doubtful plays.

The appendices supply an index to the examples of supernatural types discussed, and a code index identifies the symbols for the plays cited.

CLEMENT MANLY WOODARD. Terms for the Horse in French and Provençal. (Under the direction of URBAN T. HOLMES.)

This work is a study in dialectology. Its purpose is to record and comment on the dialect words and the dialect forms of the standard words for horse in French- and Provençal-speaking territory.

The work is divided into three parts. Part I contains *bidet, cheval,*

equa, haridelle, jument, roncin and *rosse,* with dialect forms, each form followed by the name of the place of origin. Part II contains 225 dialect words for horse. These are numbered and arranged alphabetically. Each word is followed by a definition, the name of the region using it, and by an etymological study. Part III contains expressions involving *cheval.*

Approximately one-half of the words treated are of Latin origin, about twenty-five are of Germanic origin and ten are of English origin. Arabic, Breton, Gallic, Greek, Old Norse, and Spanish contribute a few. A small number are of unknown, uncertain, or onomato-poetic origin.

Bidet is prevalent chiefly in the Northeast. *Cavale* is in the South, East and North. Descendants of Latin *equa* are found mainly in the South. *Jument* is chiefly northern. Forms of *haquenée* are in the North, East and South. *Haridelle* and similar forms are chiefly northern. Descendants of *pullus* are everywhere; however, *poulain* and *pouliche* are mainly northern, and *pourio* and related forms are mainly southern. *Roncin* is northern and eastern. Forms of *rosse* are widely distributed. Each of the 225 words treated in Part II is confined to a small region.

The following master's theses were accepted by the Department during the year:

MARIAN ATKINSON. A Study of Gilles Ménage as an Etymologist. (Under the direction of URBAN T. HOLMES, JR.)

This thesis is a summary of the life and work, particularly in the field of etymology, of Gilles Ménage. The attempt has been made to present him as an interesting and living individual, and as a real contributor to the field of etymology. The work of Ménage is too often disregarded or completely forgotten today. The fact is that among his many contemporaries who were trying to claim the credit for the discovery of the origin of the French language, Ménage was thorough enough as a scholar to percieve the basis of his native tongue in the Latin of the Vulgar Period from about the third to the eighth century A. D. With this starting point he was able to build up a system of etymological rules for the evolution of the French from Latin. Although his system was incomplete and many of his etymologies are known to be false today, he was a step ahead of his contemporaries in being one of the first to work from Latin into French on the basis of etymological rules. Ménage combines the ideals of the seventeenth century; his innate breeding was above pedantry and veiled the depth and breadth of his knowledge.

JOHN ALFRED BARRETT. Some Aspects of the Dramatic Technique of Francisco de Rojas Zorrilla. (Under the direction of STURGIS E. LEAVITT.)

This thesis, based upon a study of twenty-eight of Rojas Zorrilla's plays, reveals several interesting facts about the mechanics of his tech-

nique. The opening scenes of acts one and three are generally made effective by rapid movement of characters, showy costuming, swift dialogue or similar devices, while the openings to act two are usually slow-moving. The endings of acts one and two almost invariably round out the action and prepare for the next act, while the third act endings not only bring the plays to a good termination, but often reveal unusual solutions, which mark Rojas as a playwright of originality. The exposition is not limited to the first acts, but is found to a considerable extent in the second, and particularly in the third acts.

Three special devices seem to be characteristic of Rojas. He not only used a great number of accessories, but also frequently made them of prime importance to the plots. Furthermore, he made considerable use of off-stage effects, even going so far as to produce whole scenes with no one on the stage. Asides he employed to a great extent in the endings of the first and second acts, and frequently in other places throughout the plays.

It is evident that Rojas Zorrilla strove to depart to some extent from the usual dramatic conventions of his age and that he was successful in doing so in a large number of cases.

GEORGIA ANN BREWER. A Study of the Norse Element in the French Vocabulary. (Under the direction of URBAN T. HOLMES, JR.)

The purpose of this study is to show the character of the activities of the Norsemen within the Carolingian Empire, and to determine the extent of their influence on the French vocabulary. From the consensus of opinion of the modern etymological dictionaries, a total of ninety Norse stems in the vocabulary of the French is revealed. These stems have given twenty-seven Old French words, fifty-nine words in standard French, and twenty-five belonging to the Norman French dialect. Approximately half of the number of Norse words surviving are naval terms. The Norsemen being seamen, they introduced into the language of the French words dealing primarily with their maritime activities.

ALEXANDER R. BURKOT. Chrétien de Troyes' Perceval and its Continuators. (Under the direction of URBAN T. HOLMES, JR.)

This study reviews the findings concerning the life and works of Chrétien with special emphasis on the Perceval. As a preliminary to the analysis of the work of the continuators, the second chapter is devoted to a detailed account of the Perceval MSS. An attempt is then made to evaluate the judgment of various authorities with reference to the part assigned to each of the continuators.

The continued dissension in the ranks of scholars on vital and fundamental issues indicates a need for further investigation. There is some basis for the assertion that in the past there has been an alignment of

the experts into camps along nationalistic lines. Chrétien's importance to all literature warrants a more objective approach.

ATTILIO DICOSTANZO. The Literary Patronage of the Angevine Dynasty of Naples during the Reign of Charles I. (Under the direction of URBAN T. HOLMES, JR.)

This thesis consists of a study of the literary patronage of the Angevine Dynasty of Naples during the reign of Charles I. The chief source of information for this work has been the two volumes of P. Durrieu and A. de Boüard, "Documents en Français des Archives Angevines de Naples," published in 1933 and 1935. This material, rich in facts of human interest, has not been previously utilized for a study of this sort.

A brief sketch of the strife in Italy between the Church and State, and of the ultimate investiture of Charles of Anjou as King of the two Sicilies, precedes the investigation into the support and protection given the scribes and poets in the Neopolitan Kingdom during the Frenchman's reign.

There is included a list of the more common and unusual words which occur in the documents and a discussion of their relation to the everyday activities in the court of Naples while Charles of Anjou ruled.

CAROLINE VOGLER DIEHL. An Analysis of the Medieval French Lapidaries. (Under the direction of URBAN T. HOLMES, JR.)

This thesis correlates the material concerning ninety-eight precious stones as found in fifteen Old French Lapidaries, of which two are fragments. The stones are arranged in alphabetical order, and the identification, when possible, has been given. Both the Latin and Old French names have been listed, with a description of each stone, names of places where the stone is found, its medicinal and magical powers, and its Biblical significance.

The first chapter gives information about early literary works dealing with precious stones, and a brief description of each of the lapidaries from which the material in the thesis has been taken.

RACHEL JOHNSON. Life and Social Customs of the Sixteenth Century as Seen in the *Apologie pour Herodote* of Henri Estienne. (Under the direction of J. C. LYONS.)

This study is based upon the *Apologie pour Hérodote*, a sixteenth century collection of tales written by Henri Estienne. Its purpose is to present material from this work which reflects the life and social customs of the sixteenth century *bourgeoisie*. The five chapters deal with the following subjects: Henri Estienne and the *Apologie pour Hérodote;* miscellaneous matters such as women, clothes, food, etiquette, and houses; crime and legal procedure; disease and the medical profession; and the church.

Because of Henri Estienne's keen personal animosities, it has been necessary to discount the factual accuracy of parts of this satire on the sixteenth century. There were two subjects upon which he was unable to write objectively—Italianism and the Roman Catholic Church.

ALBERTA LOSH. Animate Nature in the Works of Saint François de Sales. (Under the direction of URBAN T. HOLMES, JR.)

We have examined 903 references to animate nature in the works of St. Francis de Sales. These references are found in 1110 pages, making an average of slightly less than one allusion to nature per page. Their distribution is as follows:

Domestic animals	142
Wild animals	99
Birds	136
Insects and worms	83
Flowers	132
Fruits	109
Herbs	44
Trees	84
Vegetables	13
Vines	21
Plants (miscellaneous)	40

We have explained the large proportion of Nature references by the fact that the works were intended for the general reader and not merely for specialists. We have concluded that the term "sugary" is not an entirely just description of our author's style and that the comparisons from Nature do not obscure the thought.

DRUSILLA LOUISE MARTIN. Onomastics: A Study of Proper Names in the *Chansons de geste* Period. (Under the direction of URBAN T. HOLMES, JR.)

Onomastics is a study of personal names. In this thesis we have dealt with the personal names in the *Chansons de geste* period. In the first chapter, the *Introduction*, we have discussed the definition, the value, the history of onomastics, the heredity of surnames, and the works that have been done on this subject. Baptismal and Family names are discussed in chapters two and three. The different types of these names are explaind and, wherever possible, frequency lists of the names of our period taken from Langlois' *La Table des Noms Propres de Toute Nature Compris dans les Chansons de Geste Imprimée* are given. Those names, especially considered, are saints', Germanic, compound, place, and descriptive.

JEAN MORRISON. *Les Prophecies De Merlin* Edited From

Manuscript Arundel 57, British Museum. (Under the direction of URBAN T. HOLMES, JR. and R. W. LINKER.)

The purpose of this thesis has been to edit a hitherto unnoticed Anglo-Norman version of the "Prophecies of Merlin" or the "Prophecies of The Six Kings to Follow King John" and to study it in its relation to other "political prophecies" in England. Based ultimately on Geoffrey of Monmouth's *Libellus Merlini* (1134-1135), the "political prophecy" attempts to foresee coming events of a political nature or recounts in veiled language events which have already happened. A careful study has been made of the events prophesied and of their application to actual facts. The anonymous author must have had actual facts at his disposal as far as the middle of the reign of Edward III. Internal and paleographical evidence indicates that this prophecy was written about 1350, possibly to celebrate Edward's victory at Crécy (1346). The events prophesied for the reigns of Richard II and Henry IV have little resemblance to historical fact.

To this study is appended the Anglo-Norman version of "The Six Kings" which Mr. Rupert Taylor has published as an appendix to his *The Political Prophecy In England.* Variants from our manuscript have been reproduced in the notes.

JAMES ROY PRINCE. A Composite System of French Semantics. (Under the direction of URBAN T. HOLMES, JR.)

This thesis is an attempt to summarize the most important reasons for semantic change in French and to summarize what these changes are.

Much has been written on French semantics, but this science is so new that there is as yet no definitely established terminology, nor has any systematic treatment been evolved.

The procedure followed has been to summarize in the various chapters of this thesis the work done in the field of semantics by those men whose writings and studies have been most important. The various chapters, bearing as titles the names of the men whose work is treated therein, will give the main ideas of the writers in their own terminology and method of development.

The most important conclusion to be drawn from all authorities is that words evolve in meaning because of changes in civilization and life. New objects or actions require new words to designate them.

The work of the common people who speak the language is most important in determining the direction of this change.

THOMAS ELISHA SCOTT, JR. A Semantics Study of Certain Common Verb Concepts in Vulgar Latin. (Under the direction of URBAN T. HOLMES, JR.)

The purpose of this thesis is: first, to present an interesting semantic

study of some thirty verbs in Vulgar Latin, second, to show that Vulgar Latin was at no time standard over the Roman Empire, and, third, to explain its close relation to Classical Latin. Some conclusion has been reached as to which of the two existing theories of Vulgar Latin is the more probable: that Classical Latin was an artificial literary vehicle concurrent with the spoken Vulgar Latin, or that Vulgar Latin was the legitimate descendant of Classical Latin.

The semantic relation of Vulgar Latin has, in every case studied, presented no serious problem, which fact indicates the normal development of Vulgar Latin from Classical Latin. Finally, by the study of whole concepts in one semantic group, it was decided that the divergent vocabularies of the various parts of Romania point to the fact that Vulgar Latin could never have been standard or uniform.

ROGERS DEY WHICHARD. The Celtic Elements in French Morphology, Syntax, and Phonology. (Under the direction of URBAN T. HOLMES, JR.)

This thesis is an examination of the traces of influence left upon the French language by the extinct Celtic language of Gaul, as regards particularly the phases of morphology, syntax, and phonology. It is a continuation of the study "The Celtic Element in Gallo-Romance," by Miss Leslie Mary Moss (Master's Thesis, University of North Carolina, 1933), which treated the subject from the point of view of vocabulary only.

As it died out, the Gaulish language left certain traces upon the language which was to become French which have been the subject of debate for many years. It is concluded that traces of the Celtic element are vague in French morphology and syntax with a few exceptions, but that its influence is clearly to be seen in certain phases of French phonology and pronunciation, which are not noticeable in the other chief Romance tongues, but which are comparable to like trends and developments in the Gaelic and Brythonic branches of the Celtic family.

DEPARTMENT OF RURAL SOCIAL-ECONOMICS

S. H. HOBBS, JR. has edited the *University News Letter,* which has appeared every two weeks during the year, each issue being devoted to some economic or social topic of concern to the state.

In connection with his membership on the North Carolina Rural Electrification Authority he has prepared reports on local conditions.

As a member of the North Carolina Tax Classification Com-

mission he has helped with the preparation of a report of 334 pages on Taxation in North Carolina, to be ready for distribution by November 15, 1938.

He has prepared for the Social Research Division, Works Progress Administration, a report of some one thousand pages summarizing the research work of the Rural Research Unit of that organization, from 1933 to June 30, 1937.

This report, to be published by the Federal Works Progress Administration, covers the following: (1) History of Coöperative Research; (2) Summaries of Coöperative Research by States; (3) Abstracts of all Research Monographs; (4) Abstracts of State Rural Research Bulletins, Reports, Printed or Mimeographed; (5) Digest of State Reports Dealing With Relief Surveys; (6) Record of State Bulletins Prepared Under the Coöperative Plan; (7) Digest of Current Summaries of Rural Research; (8) Summary of Methodology; (9) Complete List of Rural Research Projects, F.E.R.A. and W.P.A.; (10) List of Sample Counties Surveyed; and (11) A Summary of Personnel and Expenditures by States by Months from 1933 to June 30, 1937.

PROFESSOR HOBBS has directed the following research projects:

W. G. BROWDER. Survey of Fifty Plantations in Four North Carolina Counties, for Federal Works Progress Administration.

W. G. BROWDER. A Statistical Analysis of the Period of Farm Tenure in The Six Major Regions of the United States.

W. G. BROWDER. Some Aspects of the Lease System in Landlord-Tenant Relations.

H. L. GEISERT. Rural-Urban Migration in Alabama, 1920 to 1930.

KENNETH EVANS. The Coöperative Movement in Agriculture.

S. H. HOBBS, JR. has made a study of Rural Housing in the South, which was reported upon at the annual meeting of the Southern Sociological Society, Chattanooga, and which was published in the *Journal of Rural Sociology,* September, 1938.

The following doctoral dissertation was accepted by the Department during the year:

COLUMBUS ANDREWS. Administrative County Government in South Carolina. (Under the direction of E. C. BRANSON and S. H. HOBBS, JR.)

This study of county government in South Carolina is based upon data gathered by the author in making surveys of the governments of six of the forty-six counties in the state and in examining such statutory and historical works as deal with local government in that state.

In Part I of the study the development of county government is traced from the beginning of the Colonial period up to the present time. It is found that, strictly speaking, county government did not exist in the state prior to the adoption of the Constitution of 1868. This constitution did not prove to be acceptable and was replaced by another in 1895. The present system of county government is largely the result of the strong tradition concerning the administration of local affairs which developed before 1868. It is unique in that it is county government largely by county legislative delegation.

In Part II of the study the structure of the county government organization is examined and described and the duties and powers of the county boards and officials as provided in the statutes and the constitution are given. The administration of county government is illustrated from data gathered in making the surveys and found in the Acts of the General Assembly. In general, the existing counties are found to be inadequate units for local government. State control over local officials is limited to ineffective judicial control.

Part III is composed of constructive suggestions. These are divided into two groups and are based upon sound principles of public administration. The first group concerns the necessity for the enlargement of the county unit in the interest of economy; the second, the reorganization of the county government machinery in order to provide for economy and efficiency in operation, for definite location of responsibility in the operations of the county government, for its prompt response as a unit to popular demand, and for adequate and economical supervision of certain of its operations by the state. The suggested reorganization would necessitate some changes in the present organization of the state government.

DEPARTMENT OF SOCIAL WORK

The following master's thesis was accepted by the Department during the year:

ROBERT KING BAILEY. A Follow-up Study in Juvenile Delinquency: the Careers of Eighty-eight Delinquent White

Boys Committed to Jackson Training School by the Durham, North Carolina, Juvenile Court (1922-1935) and Their Post-Adjustment. (Under the direction of WILEY B. SANDERS.)

The purpose of this study has been to determine how successful the Jackson Training School, situated at Concord, North Carolina, has been in correcting the anti-social behavior on the part of the boys committed to its care by the Juvenile Court of Durham County from January, 1922, to January, 1935.

The post-institutional careers of eighty-eight delinquent white boys have been examined in detail, and it has been found that thirty-seven or 42% have been recidivists.

DEPARTMENT OF SOCIOLOGY

HOWARD W. ODUM has published during the year:

American Regionalism. A Cultural-Historical Approach to National Integration. (With HARRY ESTILL MOORE.) New York: Henry Holt and Company. 1938. 693 pp. Maps, charts, tables.

The subject is treated under three main divisions: I. The Rise and Incidence of American Regionalism; II. Historical and Theoretical Aspects of Regionalism; III. The Regional Development of a Changing Nation.

New Sources of Vitality for the People. A paper read before the American Dietetic Association, Richmond, Virginia, October 18, 1937. *Journal of the American Dietetic Association,* 14: 417-423. June-July, 1938.

American Regionalism. The Implications and Meanings of Regionalism. *Progressive Education,* 15: 229-239. March, 1938.

The Human Aspects of Chemurgy. *Farm Chemurgic Journal,* 1: 60-71. September 17, 1937.

The Promise of Graduate and Research Work in the South. A paper read at the Symposium on Higher Education in the South in connection with the inauguration of Oliver C. Carmichael as Chancellor of Vanderbilt University, Nashville, Tennessee, February 4, 1938. *Inauguration and Symposium at Vanderbilt University,* Nashville, Tennessee, 1938, pp. 99-108.

What about the Federal Equalization Fund for Education? Southern Newspaper Syndicate.

America: States and Regions. *Social Forces,* **16**: 584-586, May, 1938.

PROFESSOR ODUM prepared and presented the following papers:

The State of Sociology in the United States. Read before the Third Annual meeting of the Southern Sociological Society, Chattanooga, Tennessee, April 1, 1938. (To be published in *Social Forces,* October, 1938.)

Regional Sociology. Presented at Duke University, February 8, 1938.

The Sociology of the South. Presented at Duke University, February 17, 1938.

PROFESSOR ODUM, with KATHARINE JOCHER, is continuing his major project in folk-sociology, featuring especially folk-regional society.

PROFESSOR ODUM is completing a volume on American Social Problems to be published by Henry Holt and Company.

The volume will be divided into four main divisions: Natural and Cultural Heritage; The People; Institutions; Social Welfare and Social Planning.

PROFESSOR ODUM is directing a series of supplementary studies in "These Southern People"—a development from the Southern Regional Study—including projects by MARTHA EDWARDS, MARGARET JARMAN HAGOOD, BRUCE THOMASON, ROBERT WOODWORTH, MARY ALICE EATON, HOPE TISDALE, JAMES HUTCHINS.

With KATHARINE JOCHER, PROFESSOR ODUM edited Volume **16** of *Social Forces.*

HAROLD D. MEYER completed his study of The Training Program of the Division of Recreation. This study was made for the Division of Recreation of the Works Progress Administration.

PROFESSOR MEYER, while on a Kenan traveling fellowship,

published twenty-seven articles relating to his study of youth movements in Europe.

He is working with a committee of the Southern Sociological Society on the Teaching of Sociology in Secondary Schools.

For reports of the research activities of the following, see section entitled, "Institute for Research in Social Science," pp. 150.

ERNEST R. GROVES. Marriage and the family, the changing social order.

RUPERT B. VANCE. Population studies, especially population distribution, changing population in the Southeast; These Southern People; Southern folk leaders; the Southern agrarian economy.

HARRIET L. HERRING. Social industrial relations with particular reference to the textile industry in the Southeast; the University of North Carolina and the State.

KATHARINE JOCHER. Folk-regional Society.

GUY B. JOHNSON. Negro participation in the Southeast; legal status of the Negro; Indians and other mixed-blood groups in the South.

LEE M. BROOKS has published:

Time-spaced Reporting of a "Crime" Witnessed by College Girls. *Journal of Criminal Law and Criminology,* **29**: 3. September-October, 1938. (In collaboration with KATHERINE VICKERY.)

Analysis and Interpretation of Research Data for *Raleigh Recreation Report* for 1937-1938. Mimeographed by Raleigh Recreation Commission. 15-17 pp.

Book Reviews in the field of the community, housing, crime, and general sociology in *Social Forces,* Volume **16**.

PROFESSOR BROOKS is directing the following research.

MRS. J. ROGER PEGRAM. An Ecological Study of a Crime Area in a Small Southern City. (Progress on master's thesis.)

J. HERMAN JOHNSON. Parole in Alabama. (Progress on doctoral dissertation.)

The following doctoral dissertations were accepted by the Department during the year:

KENNETH EVANS. Changing Occupational Distribution in the South With Special Emphasis on the Rise of Professional Services. (Under the direction of HOWARD W. ODUM.)

The changing trends in occupational distribution in the United States are analyzed in this study in terms of their differential effects in the six major regions on: (1) sources of job opportunity; and (2) the availability of essential professional services. The sixfold regional division of the United States as presented by Howard W. Odum in *Southern Regions of the United States* is used in this analysis, while occupational distribution and the rise of professional services are treated within the framework of Alba M. Edwards' classification of gainful workers, as returned by the Census, into six social-economic groups.

The extent to which national trends of employment from agricultural and extractive industries to manufacturing and service occupations have operated in the several regions to produce different occupational and social-economic class structures is brought out by a rearrangement of Edwards' state data for 1930 into the six group-of-states regions. In the two southern regions the continuing predominance of workers in those social-economic groups which include agricultural occupations and the lag in those which include manufacturing and service pursuits indicate that the trends which have produced the present occupational structure of the nation have yet to work out their full effects on the South. A review of studies of differential fertility by regions and occupational groups and of occupational mobility in relation to regional trends in occupational distribution seems to bear out the claim that population has tended to bank up in the South on social-economic levels where job opportunities have been relatively declining for the nation as a whole.

As a significant part of these changing trends, the rise of professional services has been given detailed treatment. Alba M. Edwards' delimitation of the social-economic group, Professional Persons, was followed in arranging and analyzing data from the Census to show the rise of professional services. For the United States, for the six major regions, and for each state the number of Professional Persons, by sex, and the total number per 100,000 population for 1910, 1920, and 1930 with the per cent increase, 1910 to 1930, are presented. In number of Professional Persons per 100,000 population, the two southern regions fall below the figure for the nation at each census date, although they show the highest rates of increase for the period.

Separate analysis of the twenty-eight professions which make up the

social economic group, Professional Persons, is also presented by sex for states, regions, and nation. Here the fairly uniform lag of the two southern regions in number per 100,000 population of workers engaged in each profession related to health, educational, industrial and technical, legal, religious, social and welfare, agricultural, and artistic and recreational services indicates deficiencies not altogether related to normal differences in regional economic organization.

A relatively large number of professional persons in an area is shown to be significantly correlated with high percentage of urban population, with large per capita personal income, with high expenditures for public education per child of school age, and with low percentage of Negro population. Elimination of Negroes from the count, however, is shown to have little effect on the relative ranking of the regions in number of professional persons per unit of population. Implications of this study seem to indicate that a continuation of the trends in the southern regions toward "catching up" with the rest of the nation in expanding job opportunities on new levels of employment and in increasing the availability of needed professional services leads directly into the field of social control, public policy, and planning, as they relate, particularly, to provision of educational facilities and to a better balancing of economic life as between regions.

HAROLD LORAN GEISERT. The Balance of Inter-State Migration in the Southeast, 1870-1930, with Special Reference to the Migration of Eminent Persons. (Under the direction of RUPERT B. VANCE.)

This study is one of a series on the southern people under the auspices of the Institute for Research in Social Science. As a unit of inquiry into the characteristics of population movements in the Southeast, it presents data on the migration of the native white population, and as an investigation into the selective aspects of this movement, it seeks to discover the effects this migration has had upon the region.

One of the purposes of this study was to devise a method for the measurement of the movement of population for the period between 1870 and 1930. Crude survival rates were used for the population over ten years of age, and an original method for the measurement of the under ten year group was devised which gave satisfactory estimates. Thus, it was possible to ascertain the migration of native white population for each five year age group for the eleven states of the region.

During the sixty year period studied, the Southeast lost in excess of three and one-third million native white people to other regions of the United States. Kentucky experienced the greatest numerical loss, and was followed by Tennessee, Georgia, Virginia, Arkansas, Mississippi, Alabama, North Carolina, South Carolina, and Louisiana. Only one state, Florida, had a net gain of native white population by inter-state

migration in every decade.

With the exception of the period between 1920 and 1930, the net loss of males by migration has exceeded the net loss of females. The greatest net losses of population, both male and female, have been in the age groups between twenty and thirty-four years, although there were some individual state variations.

In an attempt to measure the selective effects of migration a study was made of the movements of distinguished persons. It revealed that the Southeast has lost a considerably larger percentage of its eminent persons than of its total native white population. Considerable variations were noted for the several states, and some states have actually experienced gains in the number of eminent persons while recording net losses of native white population. Since a significant coefficient of correlation between the migration of eminent persons and the total group of native white migrants is not indicated, it would appear that the operation of disturbing factors is of great importance in determining the movements of eminent persons and of the population as a whole.

An examination of a number of factors which have been credited by other investigators with influencing the movements of eminent persons did not reveal any conclusive evidence. Since it appears that migration can only be explained in terms of a complex of factors which presumably operate on individual migrants in a different manner, trends in the movements of distinguished persons cannot be determined by an analysis of changes occurring in any one or more specific factors.

An analysis of the trends in the production of eminent persons over a thirty-eight year period indicates a definite increase in the yield of this class of persons in the Southeast. Furthermore, within recent years a larger number of eminent individuals from other regions are moving to the Southeast. These trends can only be indicative of increasing opportunities within the region. It is, therefore, reasonable to anticipate that in the future the Southeast will be able to retain even greater numbers of its distinguished persons and that ultimately the great loss of native white population may be reduced by increasing opportunities for all the population.

MILDRED RUTHERFORD MELL. A Definitive Study of the Poor Whites of the South. (Under the direction of HOWARD W. ODUM.)

Within recent years increased discussion of that group of people in the South commonly called "poor whites" has come through attempted realistic portrayals in literature, accompanied by implications which might be interpreted to mean that all poor people in the South are "poor whites." The depression with its studies of low standard of living groups, and the development of regionalism with impetus given to inventories of regional resources, have given substance to discussion and

speculation as to the kind of people composing the population of the South. The question has been whether they as human resources are assets or liabilities.

In an effort to answer this, implications as to the existence of "poor whites" cannot be ignored, and this points up the problem of definition as a first step toward clarification. This problem is one of determining the meaning and use of the term in its varying forms, as well as one of defining the class which was "poor white," or which is assumed to be "poor white," in the economy of the South. Through examination of all available historical and contemporary material a socio-economic definitive theory of the "poor whites" has been developed.

An assumption basic to the theory is that society, except in primitive stages, carries on production within the framework of a social organization by means of division of labor. By that means a more adequate and surer flow of goods and services is attained for the social group. Through functioning in this division of labor, individuals, usually as members of sub-groups, obtain a share of the goods and services produced. Individuals or groups who do not so function can supply themselves with goods and services in two ways: (1) parasitically, or (2) by means of individual, unorganized economic activity.

In the ante-bellum South, the division of labor provided places for the planters, the yeomen, and the Negro slaves, but gave no recognized rôle to the poor whites. Their active participation was sporadic, and was not provided for as an integral part of the system. They lived by individual, primitive economic activities outside the socially organized economic life. As a group they were "outside," and became classified accordingly by those "inside."

With the disintegration of the plantation-slave economy, the poor whites were no longer theoretically "outside." A free-labor economy, in theory, meant the disappearance of barriers which had kept them from sharing in the division of labor. Slowly but surely they entered the new economy and participated as tenant farmers and mill operatives. Those not sharing as yet are outside for reasons other than that the system theoretically has no rôle for them, as was the situation before the Civil War. As they have been absorbed into the free-labor economy of the present day South, the poor whites, the "outside" group in the slave economy, are disappearing, perhaps have disappeared. In the new economy new groups which face the problem of inadequate standards of living are appearing or have appeared; for example, the tenant farmer, particularly the sharecropper, and the mill operative. It may be that such are becoming as well defined as the poor whites were.

The following master's theses were accepted by the Department during the year:

RICHARD ASHBY. Florida, 1920 to 1935: A Case of Inter-

state Migration. (Under the direction of RUPERT B. VANCE.)

By using the Federal and state census enumerations, an analysis was made of the increase in the Florida population by migration by five year periods from 1920 to 1935. This migration is shown by age, race, region, and residence. Especially noteworthy was the flood of old people into the state, the expansion of South Florida at the expense of other areas of the state, and the great increase in the proportion of females. An analysis was made of the composition and distribution of the population showing the influx of West Indian Negroes, the percentage of Negroes by counties, and the inhabitants of the state by residence. Maps of city and county migration disclose the sources of migration to and within the state. The conclusions reached are: A five-year census would be valuable because it would disclose what the present federal decennial census missed, such as the realty boom of 1925 and the depression. Rural zoning seems necessary, since heavy emigration was disclosed in counties where poor land was sold during the boom.

FRED FLETCHER. Curriculum Training for Recreational Leadership in Institutions of Higher Learning in the Southeastern Region. (Under the direction of HAROLD D. MEYER.)

Part one of the thesis is an attempt to give a Regional setting to the study of institutional curricula with reference to cultural backgrounds, present needs, wages and hours, occupational groups, urban and rural whites and Negroes.

Part two is a detailed analysis of curricula of one hundred and seventeen member institutions of the Southern Association of Colleges and Universities. Eleven potential State institutional training centers are singled out. Four of these are suggested as principal Regional centers of training for Recreational Leadership. The concluding chapter is a suggested curriculum set-up for training Recreational Leaders at the University of North Carolina.

ETHEL CREW HAWKINS. Family Discipline as a Conditioning Influence in the Developing of Children During the First Six Years. (Under the direction of ERNEST R. GROVES.)

Ideas about discipline have changed in recent years. Psychological and sociological studies of children have made it necessary to reinterpret the term. Discipline is now thought of as the slow and gradual process of maturation and integration of the personality. The goal of the new discipline is to lead the child, through fellowship with the parents, to the highest degree of self-discipline and self-control along socially desirable lines of which he is capable.

The methods are more often preventive than punitive. Since behavior

is only symptomatic, the modern parent seeks the underlying causes of undesirable acts, tries to eliminate them, and builds up acceptable habits in their place. Because many modifications of the original responses take place in infancy and early childhood, the part which the family plays in initiating and controlling these modifications greatly affects the individual's ultimate ability to make adjustments to personalities and situations outside the family.

WILLIAM HASKELL LEVITT. The Occupational Distribution of the Jews in North Carolina. (Under the direction of R. B. VANCE.)

Following a statistical presentation of the occupational distribution of the Jews in the United States, this study presents first hand data on their occupational distribution in North Carolina, with a third chapter on the Jewish merchant as a social and occupational type.

North Carolina has the smallest proportion of Jews in its population of any state in the union. The occupational range of the Jews in the thirteen largest Jewish communities shows an almost complete absence in semi-skilled and unskilled labor, and a predominance in the proprietors, managers, and others of official classification. Clerical and professional occupations rank next. This distribution is similar to that of the foreign born, not only in North Carolina, but in both southern regions, and runs counter to the occupational distribution of the native born. Practically all the unemployed are taken care of by local Jewish aid. The Jewish merchants and non-Jewish merchants have the same relative credit ratings. With retail trade as the most important single Jewish occupation, the Jewish merchant is seen emerging as a social and occupational type.

RAYMOND MCCLINTON. A Social-Economic Analysis of a Mississippi Delta Plantation. (Under the direction of R. B. VANCE.)

By analysis of records, accounts, and interviews, this study gives the incomes and planes of living of tenants on a Mississippi Plantation. The average net money income for 150 families was $497.34. The average expenditure of 49 tenant families was $498.94, and the average expenditure for each item was as follows: for food, $166.48, clothing $121.48, automobile cost, $45.48, furnishings for the house, $34.28, household operation, $25.96, medical cost, $22.17, tobacco, $20.80, miscellaneous items, $19.60, personal, $11.32, gifts, church dues, etc., $11.07, insurance, $5.41, recreation, $4.87, other travel, $4.61, education, $4.07, and reading material, $0.89.

DEPARTMENT OF ZOOLOGY

H. V. WILSON has completed his investigation on the breaking-up of syncytia into cells in sponges. The report is now in press in the *Journal of Experimental Zoölogy.* A related study is in progress on the part played by vacuolation in cell division, especially in the early embryos of teleost fish.

PROFESSOR WILSON is directing the following doctoral dissertations:

J. A. FINCHER. The Origin of the Germ Cells in Tetraxonid Sponges.

G. H. TUCKER. The Origin of the Germ Cells and the Development of the Gonads in Ascidians.

R. E. COKER has published:

Influence of Temperature on Cyclomorphosis of *Daphnia longispina. Journal of the Elisha Mitchell Scientific Society,* 54: 45-75. 1938. (With H. H. ADDLESTONE.)

The form of the head of newborn *Daphnia longispina* (employing the race found in University Lake), when bred in the laboratory, is seemingly controlled by the temperature to which the larvae are subjected while in the brood pouch; round heads appear at temperatures of 11° or below, round heads or slight points at temperatures of 12°, 13° and 14°, with round heads largely predominant at 12° and small points at 14°; at 16° and above only large points, or "helmets," are possessed by the newborn. Various experiments tend to discredit previous views as to the *insignificance* of the influence of temperature, as to the primary significance of "generation number" or of conditions of "depression," and as to "Präinduction." For the maintenance of points or "helmets" in the free-swimming state, on the other hand, temperature is evidently not the primary influence. In nature the correlation of form of head with season or temperature applies only in a general way, but not strictly. The complexities of the problem are pointed out.

Anomalies of Crustacean Distribution in the Carolinas with List of Cyclopoids of the General Region of Chapel Hill, N. C. *Journal of the Elisha Mitchell Scientific Society,* 54: 76-87. 1938.

Observations made at various times during several years have greatly extended the known areas of distribution of several species of calanoid copepods and of some harpacticoids. *Cyclops crassicaudis* Sars, hitherto known in the United States only from Canada and New York, is re-

ported from North Carolina. *Cyclops nanus* Sars, found in White Lake, North Carolina, seems not to have been recorded before in North America. Cladocera of certain highly specialized types are found in this State far out of their previously known ranges. What is probably the largest *Streptocephalus* of record was collected from South Carolina. Eighteen species of North Carolina cyclopoid copepods are listed.

Notes on the Peculiar Crustacean Fauna of White Lake, North Carolina. *Archiv für Hydrobiologie,* 34: 130-133. 1938.

White Lake, North Carolina, has a seemingly unique limnetic plankton, bringing to mind such exceptional bodies of water as Baikal in Siberia and Tanganyika in Africa. The plankton comprises two calanoid copepods with no cyclopoids, Cladocera, or rotifers living limnetically. Neither of the plankton copepods has been supposed to occur south of New York. The lake has other features of biological and limnological interest, including in the bottom fauna a cyclopoid (*nanus* Sars) not hitherto reported from this hemisphere, rare harpacticoids, and fresh-water shrimp.

The Aquarium. *North Carolina Education,* 4: 3: 92-94, 100-101. November, 1937.

Life in the Sea. *Scientific Monthly,* 46: 4: 299-322 and 416-432, with 39 illustrations. April and May, 1938.

The Functions of an Ecological Society. *Science,* 87: 2258: 309-315. April 8, 1938.

A Unique Station for Biological Research in the Tropics. *Scientific Monthly,* 47: 4: 364-369, with six illustrations. October, 1938.

C. D. BEERS has published:

Structure and Division in the Astomatous Ciliate *Metaradiophrya asymmetrica* n. sp. *Journal of the Elisha Mitchell Scientific Society,* 54: 111-125. With two plates.

The asymmetrical arrangement of the skeletal elements differentiates this species from other members of the genus. These elements are described in detail, and the affinities of the genus are discussed. The micronucleus and its behavior during division are described for the first time in the genus.

C. D. BEERS, on leave of absence for the year 1938-1939, is investigating, in the Laboratory of Chemo-Physical Biology of Stanford University, the factors that affect encystment

and excystment and the cytological accompaniments of these processes in the ciliated protozoan *Tillina magna.*

D. P. COSTELLO has published:

The Early Cleavage of *Polychoerus carmelensis. The Anatomical Record,* **70**: Suppl. No. 1, 108-109. 1937.

A preliminary note describing the early development of an acoelous turbellarian. Cleavage corresponds to the process in certain European Acoela as described by Bresslau, rather than to that described by Gardiner for the Atlantic Coast *Polychoerus caudatus.*

The Effect of Temperature on the Rate of Fragmentation of Arbacia Eggs Subjected to Centrifugal Force. *The Journal of Cellular and Comparative Physiology,* **11**: 301-307. One figure. 1938.

A study of the effect of temperature on a newly described physical characteristic of the cell surface. As the temperature is decreased from thirty degrees centigrade to one and a half degrees centigrade, there is an exponential decrease in the rate of fragmentation of the egg cells under the influence of a constant centrifugal force.

Notes on the Breeding Habits of the Nudibranchs of Monterey Bay and Vicinity. *The Journal of Morphology,* **63**: 319-343. Two plates. 1938.

Data relating to the seasonal distribution, frequency of mating, and incidence of egg laying of twenty-two species of Pacific Coast nudibranch molluscs are recorded. The relationship between these observations and earlier work on the life histories of nudibranchs is discussed, with a brief consideration of the theories which have been formulated to account for their sporadic appearances and disappearances.

Studies on Fragments of Centrifuged Nereis Eggs. *The Collecting Net,* **13**: 159-160. 1938.

An experimental study of the fertilizability of nucleate and enucleate egg fragments, produced by cutting centrifuged Nereis eggs with microneedles. Only those fragments containing the germinal vesicle have the capacity for fertilization and development. (This work was carried out with the aid of a grant from the Smith Research Fund.)

Studies on Fragments of Centrifuged Nereis Eggs. (Abstract of a seminar report given at the Marine Biological Laboratory, Woods Hole, Massachusetts, on August 16, 1938.) *The Biological Bulletin,* **75**: 343. 1938.

D. P. COSTELLO has completed the following papers:

The Volumes Occupied by the Formed Cytoplasmic Components in Marine Egg Cells. (To appear in a forthcoming issue of *Physiological Zoölogy.*)

Some Effects of Centrifuging the Eggs of Nudibranchs. (Accepted for publication in the *Journal of Experimental Zoölogy.*)

An Error in a Specific Name in the Genus Glossodoris. (Submitted to the Secretary of the International Committee on Zoölogical Nomenclature.)

The following papers are in preparation for publication:

The Effects of Centrifugal Force on the Fertilization Reaction in the Egg of *Nereis limbata.*

Some Changes in the Physical Nature of the Asterias Egg during the Maturation Cycle.

Cortical Activity during Cleavage in the Nudibranch Egg.

The Development of Cut Fragments of Centrifuged Nereis Eggs.

D. P. COSTELLO and HELEN M. COSTELLO have published:

Copulation in the Acoelous Turbellarian *Polychoerus carmelensis. The Anatomical Record,* **70**: Suppl. No. 1, 138. 1937.

A preliminary account of the mating activities of this form. This is the third species of Turbellaria Acoela for which mating has been recorded.

Egg Laying in the Acoelous Turbellarian *Polychoerus carmelensis. The Anatomical Record,* **70**: Suppl. No. 1, 138-139. 1937.

This preliminary note is the first description of the mode of egg laying in the Acoela recording the path of exit of the eggs. The eggs emerge through breaks in the ventral body wall rather than through the mouth or female aperture, as had been previously suggested by other workers.

A New Species of Polychoerus from the Pacific Coast. *The Annals and Magazine of Natural History,* Series 11, **1**: 148-155. 1938.

A brief description of the acoelous turbellarian, *Polychoerus carmelen-*

sis, spec. nov., enumerating its points of difference from the Atlantic Coast *Polychoerus caudatus*.

Copulation in the Acoelous Turbellarian *Polychoerus carmelensis*. *The Biological Bulletin*, 75: 85-98. Two plates and three text-figures. 1938.

A detailed description of the reproductive system of this primitive worm, together with an account of the mating process, as observed in the living condition, and as reconstructed from serial sections of worms killed during this process. (This work was published with the aid of a research grant from the Society of Sigma Xi.)

The following paper has been completed:

Egg Laying in the Acoelous Turbellarian *Polychoerus carmelensis*. (Carried out with the aid of a research grant from the Society of Sigma Xi, and recently submitted for publication.)

W. L. ENGELS has published:

Variation in Bone Length and Limb Proportions in the Coot (*Fulica americana*). *Journal of Morphology*, 62: 599-607. One figure. 1938.

Analysis of measurements of the trunk region of the vertebral column and of the various segments of the wing and leg skeleton in sixty-four specimens (thirty-four males, thirty females) of *Fulica americana* shows that: Males average about 7% larger (longer) than females in all parts of the skeleton; the difference is uniform throughout the body. The coefficient of variability ranges from about 3.00 (humerus, et al.) to about 5.00 (hind-toe). The correlation between lengths of parts is very high between different segments of the wing skeleton, or of the leg; it is somewhat less between homologous segments of the wing and leg; and it is still less between limbs and trunk. This decreasing order of correlation indicates an increasing order of independence of variability. The wing proportions in Fulica are those characteristic of the type of flight called "flatterflug." The proportions of the leg are those of a bird moderately adapted for cursorial locomotion; the very long toes characterize a swimming bird.

Cursorial Adaptations in Birds. Limb Proportions in the Skeleton of Geococcyx. *Journal of Morphology*, 63: 207-217. Three figures. 1938.

Comparison of intramembral and trunk/limb proportions in the Roadrunner (Geococcyx) and two related genera of Cuckoos (Coccyzus and

Crotophaga), together with a consideration of their habits of locomotion, leads to the following two generalizations: 1) The incipient cursorial leg of more primitive, arboreal birds, with the metatarsus shorter than the femur, is not an efficient mechanism for bipedal terrestrial locomotion. The direct adaptation to the cursorial habit in terrestrial birds lies in the further elongation of the whole leg; elongation proceeds at a different rate in each segment of the leg, the relative increase in length being progressively greater in each segment, proceeding distally. 2) When the development of terrestrial, cursorial habits in birds leads to diminished use, or disuse, of the wings as organs of locomotion, the wing skeleton becomes reduced in length; the reduction proceeds at a different rate in each segment of the wing, the relative decrease in length being progressively less, proceeding proximally. It is probable that reduction appears first in the most distal segment and later, successively, in each segment proceeding proximally therefrom.

W. L. ENGELS has in progress further studies on the anatomy of adaptations in birds, and has the following papers in press:

The Tongue Musculature of Passerine Birds. *The Auk.*

Structural Adaptations in Thrashers (Mimidae: genus Toxostoma) with Comments on Interspecific Relationships. *University of California Publications in Zoölogy.*

The following master's thesis was accepted by the Department during the year:

COIT MCLEAN COKER. A Study of the Genital Rachis of an Echinoid, *Arbacia punctulata.* (Under the direction of H. V. WILSON.)

Prouho's account (1887) of the morphological relations existing in the axial complex and the aboral lacunary ring in the adult Echinoid is largely verified. The genital rachis, or circular cord of primordial germ cells, which other investigators (Prouho, Cuénot, Hamann) speak of as being present in sea urchins up to 10 mm. in diameter, must develop prior to the 5 mm. stage in *Arbacia punctulata* and then atrophy after giving rise to the gonads. There is present in *A. punctulata* of 3 mm. a tubular cord of cells associated with the ovoid gland and the dorsal peritoneum. The inference is that it is a beginning genital rachis and that the peritoneum investing it is being involved in the formation of an aboral lacunary ring. Further study of other individuals of the same and smaller size is necessary before any definite conclusions can be made.

PART III

Research Organizations and Publications

INSTITUTE FOR RESEARCH IN SOCIAL SCIENCE

HOWARD WASHINGTON ODUM, *Director*
KATHARINE JOCHER, *Assistant Director*

Substantial grants from the Laura Spelman Rockefeller Memorial and the Rockefeller Foundation made to the University of North Carolina, for the study of problems in the social sciences arising out of state and regional conditions, led to the establishment in 1924 of an Institute for Research in Social Science. The work of the Institute represents, therefore, a specific program of regional social research, study, and interpretation, with studies in population, local government, southern historical backgrounds, socio-economic activities (including studies in social-industrial relationships), crime and criminal justice, the Negro, folklore and folk backgrounds of the southern people, social institutions, public welfare and child welfare, and human geography of the American South. While chosen for the most part from the state and regional field, research projects are selected with a view to their generic value and for their possible contribution in both method and content.*

THE INSTITUTE has published during the year:

The Wasted Land. By GERALD W. JOHNSON. Chapel Hill: The University of North Carolina Press. 1937. 110 pp.

For a report of the research activities of HOWARD W. ODUM in American regionalism; These Southern People—a supplementary study to the Southern Regional Study; folk-regional society; American social problems; see section entitled Department of Sociology, p. 135.

ERNEST R. GROVES has published during the year:

Divorce, *Encyclopaedia Britannica Year Book* for 1938.

The Psychic Side of Marital Maladjustment. *Social Forces*, 16: 396-400. March, 1938.

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* For a further statement regarding the establishment and the purposes of the Institute and for book lists of publications, see *Research in Progress*, 1928-1929, pp. 95-97; 1929-1930, p. 80; 1930-1931, p. 89; 1931-1932, p. 90; 1932-1933, p. 91; 1933-1934, pp. 95-96; 1935-1936, pp. 101-102; 1936-1937, pp. 134-135.

History of Marriage. *Dictionary of American History.*

History of the Family. *Dictionary of American History.*

The Case for Monogamy (with GLADYS HOAGLAND GROVES). *Good Housekeeping Magazine,* August, 1938.

New Standards for Family Living. *National Parent-Teacher Magazine,* August-September, 1938, pp. 13-15.

Mental Hygiene. *Social Forces,* **16**, pp. 138-140, October, 1937.

For the Marriage Course. *Social Forces,* **16**, 288-290, December, 1937.

The Churches and the Family. *Social Forces,* **16**, pp. 596-599, May, 1938.

With RUTH WOOD GAVIAN and A. A. GRAY, PROFESSOR GROVES completed the revision of *Our Changing Social Order.* To be published by D. C. Heath and Company.

PROFESSOR GROVES has under way (1) researches in the Development of Domestic Institutions; (2) further contributions to the *Dictionary of American History*; (3) article on divorce for the *Encyclopaedia Britannica Year Book* for 1939.

PROFESSOR GROVES directed the following research:

ETHEL CREW HAWKINS. (Master's thesis in the Department of Sociology.) Family Discipline as a Conditioning Influence in the Developing of Children during the First Six Years. (For abstract, see Department of Sociology.)

RUPERT B. VANCE has published during the year:

Research Memorandum on Population Redistribution within the United States. New York: Social Science Research Council. 1938. 134 pp. 18 tables.

In the fields bearing on population redistribution, namely: (1) contrasting areas of economic opportunity, (2) differential reproduction, (3) differential changes in employment capacity, (4) the movement of industries, and (5) internal migration, this memorandum seeks to point out (1) the accepted interpretations, (2) the materials on which these interpretations are based, (3) the gaps in the data, and (4) the next lines of feasible research.

Rebels and Agrarians All: Studies in One-Party Politics. *Southern Review,* IV, 26-44 (Summer, 1938).

Rural Relief in the South in the series "The South Today."

Southern Newspaper Syndicate release to the Press, June 5, 1938.

Book reviews in *Southern Economic Journal, Social Forces,* etc.

As a member of the Technical Committee on Population Problems of the National Resources Committee, PROFESSOR VANCE contributed two chapters on "The Regional Distribution of Economic Opportunity" and "Cultural Diversity in American Life" in *Problems of a Changing Population,* National Resources Committee, Washington, D. C., 1938.

PROFESSOR VANCE prepared and presented the following papers:

Rural Distress and Relief in the Southeast. Testimony before a Special Committee of the United States Senate, March 7, 1938. Published in *Hearings before a Special Committee to Investigate Unemployment and Relief.* United States Senate, 75th Congress. Washington, D. C.: Government Printing Office. 1938. Vol. II, 1011-1016, 1556-1560.

Social and Economic Implications of Surplus Births in the Rural South. Round Table on Population Studies, Sixteenth Annual Conference of the Milbank Memorial Fund, New York, March 29-31, 1938.

Graduate Education in Agriculture in the South. Dedication Program, Louisiana State University, Baton Rouge, April 6-8, 1938.

PROFESSOR VANCE is continuing researches into:

These Southern People: A study of changing population problems in the Southeast.

Folk Leaders in the Post-Reconstruction South.

First drafts of the chapters on Governor James S. Hogg, Benjamin R. Tillman, Jeff Davis, Charles A. Aycock, Robert L. Taylor, B. B. Conner, Coleman L. Blease, and James and Miriam A. Ferguson have been completed.

The Geography of Distinction in the United States, 1790-1930.

PROFESSOR VANCE has directed the following research:

HAROLD L. GEISERT. (Doctoral dissertation in the Depart-

ment of Sociology.) The Balance of Inter-State Migration in the Southeast, 1870-1930, with Special Reference to the Migration of Eminent Persons. (For abstract, see Department of Sociology.)

RICHARD H. ASHBY. (Master's thesis in the Department of Sociology.) Florida, 1920-1935: A Case of Interstate Migration. (For abstract, see Department of Sociology.)

WILLIAM H. LEVITT. (Master's thesis in the Department of Sociology.) The Jews in North Carolina: A Study in Occupational Distribution. (For abstract, see Department of Sociology.)

RAYMOND MCCLINTON. (Master's thesis in the Department of Sociology.) A Social-Economic Analysis of a Mississippi Delta Plantation. (For abstract, see Department of Sociology.)

PROFESSOR VANCE is directing the following research:

VINCENT H. WHITNEY. A Study of Village Population in the Southeast Region.

TREZ P. YEATMAN. The Social Effects of Mechanization in Agriculture by Regions and Types of Farming Areas.

S. C. MAYO. Relief in the Southeast, 1930-1938.

HARRIET L. HERRING has published during the year:

The Clement Attachment: An Episode of Reconstruction Industrial History. *The Journal of Southern History,* IV: 185-198. May, 1938.

MISS HERRING prepared and read a paper on the Outside Owner in the Southern Industrial Pattern before the American Sociological Society in Atlantic City, New Jersey, December 28, 1937. The paper has been prepared for publication in *Social Forces.*

With the assistance of MARGARET CLARK NEAL and WPA workers, MISS HERRING compiled The North Carolina Conference for Social Service: The Record of Twenty-Five Years, 1912-1937.

In collaboration with GERALD W. JOHNSON, MISS HERRING is completing a study of the University of North Carolina in relation to the State.

MISS HERRING is also completing her work on the History of the Textile Industry in the South.

KATHARINE JOCHER, with HOWARD W. ODUM, is continuing work on the project in folk sociology, featuring especially folk-regional society.

DR. JOCHER has published:

Review of *Problems of Administration in Social Work* by Pierce Atwater. *Social Forces,* 16, pp. 439-441, March, 1938.

DR. JOCHER, with HOWARD W. ODUM, has edited Volume 16 of *Social Forces.*

DR. JOCHER edited the typescript and directed the preparation of the manuscript of *American Regionalism*—A Cultural-Historical Approach to National Integration by HOWARD W. ODUM and HARRY ESTILL MOORE.

GUY B. JOHNSON has continued his study of the Indians of Robeson County, North Carolina, and other similar mixed-blood groups in the South. During the summer of 1938 he visited several mixed communities in Louisiana.

DR. JOHNSON has also continued work on the study of the participation of Negroes in Southern life.

DR. JOHNSON has assisted in the supervision of the study of legal status of Negroes in the United States, which is being made by CHARLES S. MANGUM, JR. This study is nearing completion.

DR. JOHNSON prepared and read the following papers:

Graduate Study for Southern Negro Students. An address delivered at New Orleans, December 9, 1937, at the meeting of the Southern Association of Colleges and Secondary Schools for Negroes. To be published by the Association.

An Interracial Triangle in Robeson County, North Carolina. A paper read at the meeting of the Southern Sociological Society, Chattanooga, Tennessee, April 1, 1938.

DR. JOHNSON is directing JANET SEVILLE'S study of the re-

lation of the Negro Presbyterian Church in the Southeast to the national program.

MARGARET JARMAN HAGOOD has prepared for publication in *Social Forces* an article on the Implications of Topological and Field Theoretical Psychology for Sociology.

DR. HAGOOD has under way a study of farm tenant mothers.

Case studies of 254 tenant farm mothers; 129 within the Group-of-Counties Subregion of North Carolina, 124 (less intensive) in Georgia, Alabama, Mississippi, and Louisiana. Both field work and analysis of data are still in progress.

DR. HAGOOD is preparing a Preliminary Prospectus of the North Carolina Subregional Laboratory for Social Research and Planning, which will be completed in October.

DR. HAGOOD has assisted the North Carolina State Board of Health Contraceptive Service in the preparation of record forms for use in the analysis of clinical cases.

FRANCIS S. WILDER, under the direction of MILTON S. HEATH, is continuing his study of Southern Standards of Living.

The scope of the study comprises a tabular analysis of past studies of family living in the United States as to aim, scope, auspices, and nature of the published reports, together with a field study and an analysis of the nation-wide study of family living, known as the Consumer Purchases WPA project, now being completed by the U. S. Bureau of Labor Statistics, the U. S. Bureau of Home Economics, and several other governmental agencies.

WALTER GORDON BROWDER, under the direction of S. H. HOBBS, JR., has under way a case study analysis of Farm Tenant Families in a Subregion of North Carolina and Virginia.

This study is an attempt to arrive at and to analyze the factors influencing the social mobility of farm tenant families, with particular reference to the rate at which these families move into the tenant class from higher or lower tenure classes, and the degree to which farm tenant families tend to perpetuate their status through marriage. The area under consideration is a thirteen-county subregion in North Carolina and Virginia, characterized by cotton, tobacco, and diversified farming, and by varying degrees of farm tenancy.

VERNON LANE WHARTON, under the direction of FLETCHER

M. GREEN, has under way a study of The Negro in Mississippi since the Civil War.

This is a study of the social, economic, and political adjustment of the Negro from the end of the Civil War until his elimination as an active factor in politics in 1890, and of his changing status since that time. It views the Negro as an integral part of the population of a southern state, and as a part that must be considered and understood in any intelligent effort to solve the problems of that state.

VINCENT HEATH WHITNEY, has assisted RUPERT B. VANCE in the study of These Southern People with particular attention to Population Aspects of the Village in the Southeast.

MR. WHITNEY also assisted PROFESSOR VANCE in preparing the report on Unemployment and Relief in the Southeast, published by the Byrnes Investigating Committee of the Senate.

MR. WHITNEY has published:

Prisons, Police, and Prevention. *Social Forces,* 16: 294-298, December, 1937.

Under PROFESSOR VANCE'S direction, MR. WHITNEY has also prepared reports on such subjects as Colonial Economics, Mountain Whites, and Peonage, in connection with the Study of These Southern People.

SELZ C. MAYO, under the direction of HOWARD W. ODUM, has compiled a list of sources of available information, such as the U. S. Census, reports of surveys and investigations by governmental and non-governmental agencies, North Carolina News Letter, etc., on the Group-of-Counties Subregion in North Carolina.

MR. MAYO has also begun work on a study of the characteristics of the people on relief in the Southeast.

JANET SEVILLE, under the direction of GUY B. JOHNSON, has under way a study of the relation of the Negro Presbyterian Church in the Southeast to the national program.

The first unit of this project is attempting to determine the relationship of the four Negro Synods of the Presbyterian Church U. S. A. to the Church program as a whole and the integration of their churches in the life of the communities where they are located, using the Catawba Synod, composed of the states of Virginia and North Carolina, as the laboratory.

As units in the study of These Southern People, the following research projects were completed during the year:

KENNETH EVANS, under the direction of HOWARD W. ODUM: Changing Occupational Distribution in the South with Special Emphasis on the Rise of Professional Services.

HAROLD LORAN GEISERT, under the direction of RUPERT B. VANCE: The Balance of Inter-State Migration in the Southeast, 1870-1930, with Special Reference to the Migration of Eminent Persons.

MILDRED RUTHERFORD MELL, under the direction of HOWARD W. ODUM: A Definitive Study of the Poor Whites of the South.

RICHARD ASHBY, under the direction of RUPERT B. VANCE: Florida: A Study in Inter-State Migration, 1920-1935.

WILLIAM HASKELL LEVITT, under the direction of RUPERT B. VANCE: The Occupational Distribution of the Jews in North Carolina.

RAYMOND MCCLINTON, under the direction of RUPERT B. VANCE: A Social-Economic Analysis of a Mississippi Delta Plantation.

(For Abstracts, See Department of Sociology)

PROCEEDINGS OF THE ELISHA MITCHELL SCIENTIFIC SOCIETY

OCTOBER 19, 1937, TO MAY 17, 1938

H. V. WILSON, *President*
D. A. MACPHERSON, *Vice-President*
E. T. BROWNE, *Permanent Secretary*

J. E. ADAMS, *Recording Secretary-Treasurer*

378TH MEETING, OCTOBER 19, 1937

W. L. ENGELS: *Recent Trends in Comparative Vertebrate Anatomy.*

J. E. MAGOFFIN: *Electrophoresis.*

Whenever two phases come into contact there generally arises a stratification of balanced electrical charges between the phases, one becoming positive and the other negative. Although several combinations are possible, the one usually encountered is that of a solid phase in contact with a liquid phase. If an electrical field is impressed across such a system, the negative phase tends to move toward the anode and the positive phase toward the cathode. When the solid surface is spread out over many small particles, these particles will move through the liquid when the external potential is applied. This is known as electrophoresis.

The speed of movement of the particles is dependent on the charge carried by the particles, the external potential, and the dielectric constant and viscosity of the liquid. This relation enables one to determine the charge of particles in colloidal suspension by measuring the speed of electrophoresis.

Several methods for measuring electrophoretic velocity were discussed and the advantages, disadvantages, and difficulties involved in the use of each were taken up. A simplified cell for use with the ultra-microscopic, direct measurement method used by the author was described.

With this method, the effect of hydrogen ion concentration on the electrophoretic velocity of platinum, indigo, and sodium oleate sols was determined. From this data, and results of other investigators, it was concluded that:

1) Platinum particles in colloidal suspension, made by arcing platinum wires under water, owe their charge to the ionization of hexahydroplatinic acid, which is present in the surface of the particles.

2) Indigo particles acquire a negative charge by losing hydrogen ions from the imino groups in the molecule.

3) The micelles of sodium oleate sols consist largely of oleate anions.

379TH MEETING, NOVEMBER 23, 1937

A. G. BAYROFF: *The Experimental Social Behavior of Animals, I. The Effect of Early Isolation of White Rats as Measured by Two Periods of Free Choices.*

Two groups of rats of approximate genetic equality were separated from their mothers when nineteen days old. Those of one group were reared in isolation and those of the other were reared in groups. When approximately 115 days old each animal was offered one choice a day for sixty days between a compartment containing food alone and a compartment containing, in addition to food, two white rats. After a month's interval they were given another series of sixty daily choices, this time neither compartment containing food.

The results showed few cases of social preferences (going consistently to a compartment with rats), these being best observed in those rats that had been reared in solitude.

It thus appears that the nature of the early life is of itself no certain indication that the behavior resulting from that kind of a life will appear. Unless the present situation is an occasion for the occurrence of the behavior affected by the early life, it will not differentiate the normal animals from the special animals.

A. E. RUARK: *Atom-smashing Equipment.*

380TH MEETING, DECEMBER 14, 1937

J. A. WHEELER: *Basic Particles of Atomic Structure.*

Already in the days of Greek science a contrast developed between two points of view as to the structure of matter, a contrast which continues even to the present time in a division between a field theory of matter and a corpuscular theory of matter. In 470 B. C. Leukippos of Milet proposed a mechanical explanation of the world in terms of a vacuum in which were placed atoms without qualities which, however, were responsible in a secondary way for the qualities of material matter as we know it. In contrast to this corpuscular point of view, Empedokles of Akragas in 450 B. C. suggested that the changes of matter should be accounted for in terms of four perpetual elements, earth, air, fire, and water, under the influence of attraction and repulsion.

Detailed knowledge of the structure of matter came only when modern scientific methods had been developed. In four great years of scientific advance a deeper understanding was brought about. In 1895 W. K. Röntgen discovered X-rays and a controversy immediately developed as to whether they were particles or waves. In 1896 Becquerel discovered radioactivity. In 1897 Thomson investigated the electron, and in 1898 the Curies obtained polonium. It soon became clear what was the criterion to distinguish between waves and particles. A charged particle

is characterized by energy and momentum. It is deflected in an electric or a magnetic field. (An experiment was shown at this point demonstrating the deflection of electrons in a magnetic field.) Light and wave motion, on the other hand, are characterized by wave length and the property of interference. (The audience was shown a neon light and given the opportunity to examine the spectrum of this light with a grating of fine lines ruled on glass, demonstrating the interference of light.)

X-rays were found to show interference and were therefore classified as light. Electrons could be deflected and therefore were regarded as particles. More recent experiments have shown that there are links between waves and particles, pointing to the essential unity of the two ideas. First of all, electrons passing through sheets of matter where the atoms stand in regular array show the same interference properties as does light passing through a grating. Conversely, light waves passing through the gravitational field of stars show a deflection similar to the deflection experienced by material particles.

Secondly, not only are light waves and particles similar in regard to interference and deflectibility but light can be converted into matter. A beam of penetrating radiation of short wave length—gamma rays—is partially converted into positive and negative electrons, on passing through a thin sheet of lead. The newly found positive electrons created in the experiment are of short life. Almost instantaneously, after striking atoms in their path, these positive electrons combine with ordinary electrons, disappear, and the lost energy flies away in the form of radiation of the same nature as visible light but more penetrating owing to the shorter wave length.

The partial unification of ideas of particles and waves achieved by the above-mentioned experiments still leaves unanswered the rôle of the heavier particles encountered in a study of matter. So far no experiments have shown the possibility of creating or annihilating protons—the nuclei of hydrogen atoms—or the nuclei of other atoms. It appears that the high energies encountered in the study of cosmic rays may show effects which will give a better understanding of relation between the heavier building blocks of matter and the electrons and light waves which now fit into the picture presented by the modern quantum theory.

J. C. ANDREWS: *Mechanism of Acid-Base Control by Urine Excretion.*

One of the principal functions of urine excretion consists in the removal from the blood of the strong acids which are normal products of protein metabolism. The average diet results, in the normal individual, in the production of considerable quantities of two strong acids: sulfuric and phosphoric. The former results from metabolic oxidation of the sulfur present in varying amounts in all proteins and the latter from hydrolysis of phosphoric acid esters and conjugates in nucleo- and phospho-proteins. Other end products of protein metabolism (uric acid)

and small amounts of unoxidized organic acids slightly increase the total amount of acid to be handled, while the burden is very materially increased when, as in the diabetic, acid products of incomplete fat metabolism must be handled.

To excrete such quantities of acid unneutralized would be biologically impossible because of the low pH involved. To neutralize them sufficiently with "fixed base" (sodium or potassium) would involve too great a drain on the body's supplies of these bases. The situation is met therefore by a combination of the two, aided by the production of ammonia from urea by the kidneys. Thus some acid is excreted unneutralized (thereby normally producing a urine more acid than blood), but the stronger acids are neutralized, to a large extent, by ammonia, thus minimizing the use of "fixed bases." The ammonia content is therefore higher, the more acid the urine, and the number of equivalents of acid excreted as ammonium salts is normally always greater than the number of equivalents excreted unneutralized.

381ST MEETING, JANUARY 11, 1938

W. H. IRWIN: *The Grand Coulee Dam* (Illustrated).

382ND MEETING, FEBRUARY 8, 1938

A. RUSSELL: *The Chemical Structure of Some Natural Coloring Matters.*

O. STUHLMAN: *The Mechanism Called Nerve Conductance.*

383RD MEETING, MARCH 8, 1938

H. G. BAITY: *Some Factors Affecting the Decomposition of River Deposits.*

Z. P. METCALF: *The Making of Bibliographies.*

The purposes and functions of bibliographies were briefly discussed and the fact that they are essential in all scientific work was stressed. The author's present method of making a bibliography was discussed in some detail and the various methods used to index bibliographies was described. The method of selecting papers in a bibliography was described and rules were given for including or excluding certain articles.

384TH MEETING, APRIL 12, 1938

C. C. JONES: *Visible Effects of Ionizing Particles.*

385TH MEETING, MAY 17, 1938

W. F. PROUTY: *Further Studies of the Carolina Bays* (Illustrated).

J. N. COUCH: *A Review of Work on Septobasidium* (Illustrated).

The following officers were elected for the year 1938-1939:
President—H. V. Wilson.
Vice-President—D. A. MacPherson.
Recording Secretary—Treasurer, J. E. Adams.

THE PHILOLOGICAL CLUB

G. A. HARRER, *President*
RAYMOND ADAMS, *Vice-President*
W. D. CREECH, JR., *Secretary*
F. E. COENEN, *Treasurer*

OCTOBER 5, 1937

RAYMOND ADAMS: *A Preface to Transcendentalism.*

The romantic ferment called transcendentalism flourished in New England during the 1830's and 1840's because of a combination of circumstances peculiar to the time and place, and was more American than has been supposed. New England had settled into comfort, prosperity, and materialism; and transcendentalism was in a very real sense a reaction to the low state of idealism which thinkers saw around them. The literary and philosophical influences of Europe and Asia are not to be neglected, but there is danger that they will be exalted into prime causes of American transcendentalism rather than regarded as the corroborative materials which the transcendentalists so often found them to be.

Evidence of the concern which the transcendentalists felt toward American life of the time is to be seen in their attempts to promulgate and practice their doctrines by means of periodicals which they founded and experimental communities in which they interested themselves. The *Dial* may be taken as a type of the former, and Brook Farm and Bronson Alcott's Fruitlands are types of the latter, Fruitlands being the more transcendental, Brook Farm the more concerned with changing the American way of life.

NOVEMBER 9, 1937

URBAN T. HOLMES, JR.: *Some Problems Connected with an Edition of the Old French Berthe aus grans piés.*

First there was an attempt to show that two MSS of the poem, B.N.fr. 12,467 and Arsenal MS 3142, were products of the same *scriptorium* in Paris. If this is true the first of these is superior to the

second, a fact that has not been recognized heretofore. Secondly an effort was made to identify two place names: Valberte and the small stream Minclo, which would aid materially in suggesting that Adenet, the author, was familiar with the locality near Le Mans. These were identified with Vaubert and Muncol, respectively. Finally it was proved that the coat of arms which King Pepin gives to the forester, as a reward for his care of Berthe, were actually the arms of the Boschier ("woodman") family.

FEBRUARY, 1938

J. C. LYONS: *Private Life and Social Customs in Sixteenth Century France.*

While numerous studies have been devoted to the ways of life among the upper classes during the period in question, almost no attention has been paid to corresponding aspects of the life of the middle and lower classes. The speaker has long felt the desirability of such a project, and in the past five years a number of graduate students in the Department of Romance Languages have undertaken papers and theses in connection with this general project.

We have found the popular *contes* of the time to be a mine of information about the manners of the lower classes,—the classes which have not received much attention of the official gossips, and whose existence has left little trace in the official records of the day. It is also the sort of unpretentious literature in which we can expect to find (with proper reservations for the personal prejudices of individual authors and for conventional literary traditions) the most sincere reflection of actual conditions of life of the time.

The papers and theses referred to above have already collected and classified a considerable body of material about the manners and opinions of doctors, lawyers, students, clergymen, peasants, etc. It is the purpose of those interested in the project to continue the work until all of the collections of *contes* in the period have been considered, to unify and coördinate the total body of material, and then to present to the literary public what we hope will be an interesting picture of average life in the French Renaissance. It is our belief that such a study will be interesting in itself, and that it will also provide a valuable background for a better understanding of the literature of the age.

MARCH 7, 1938

RICHARD JENTE: *Some Aspects of German Literature during the past Decade.*

Like all agencies of public information and enlightenment, literature too stands under government control (Reichsschriftumskammer). Writers of all kinds belong to guilds, and all literary production conforms to the

ideology of the state. The writing of literary history has undergone changes. Literary men of the past, whose works do not fit into the present day ideas, are either ignored or "re-estimated." Authors, who before 1933 stressed national-racial themes, are held in high esteem. The most common form today is the novel, especially the psychological novel of character development. The commonest themes are of peasant life, of historical personages, and of the historical past. All literature is distinctly non-international; it is of the German people, by the German people, and for the German people. There is in general a deep and serious tone which pervades the literature. Very widely read is the mystic novelist Hermann Stehr. Many writers are future conscious: Stehr sees ahead a better and deeper inner man, Edwin Kolbenheyer a more perfect biological product, Hans Grimm dreams of wider geographical limits for the German people. Heimatdichtung (regional literature) flourishes as never before. Each district has its local writer. Local tales and Märchen are very popular, as those of Hanns Blunck. Writing in dialect has increased. Lyrical poetry is abundant; some of the writers are of very humble origin, peasants and working-men. The most widely spread form of poetry is the political lyric, particularly party songs of submission to duty and adoration of the Führer, as in the popular poems of Baldur von Schirach. The most highly honored political poet today is Gerhard Schumann.

MAY 10, 1938

GEORGE MCKIE: *Some Notes on Acting.*

Talma and Diderot are often quoted as representing opposite theories of acting,—Talma holding that the actor should feel his represented emotions; Diderot, that he should be only the artist, fully conscious of his technique.

Delsarte, as interpreted by Steele MacKaye, strove to satisfy the ideal of Diderot by giving the conscious artist controlled mobility of face and body, and so tended to provide Gordon Craig with his über-marionette.

The use by the actor of the James-Lange theory of the emotions will enable him to include Talma by inducing emotions similar, at least in their physical responses, to the emotions supposedly felt by the character that he is representing.

APRIL 5, 1938

G. C. TAYLOR: *A Glance Towards the Renaissance.*

In a modern world where methods of thought and action are tending to take on a quality of medieval and pre-medieval fanatacism, it might be well for the man of the twentieth century to turn for aid in seeking a solution to the thinkers of the Renaissance. These men worked out a similar situation, and in their works we should find an answer to some of the problems of our own perplexing times.

SOCIETY OF THE SIGMA XI (North Carolina Chapter)

President, W. C. GEORGE; *Vice-President,* H. R. TOTTEN; *Secretary-Treasurer,* R. W. BOST; *Member of Executive Committee,* D. A. MACPHERSON; *Member of Nominating Committee,* F. K. CAMERON.

OCTOBER 29, 1937

J. C. ANDREWS, Professor of Biochemistry, University of North Carolina.

Sulfur Metabolism.

JANUARY 18, 1938

F. H. SWETT, Professor of Anatomy, Duke University.

Experiments Upon Developing Limbs.

APRIL 22, 1938

W. M. STANLEY, Rockefeller Institute for Medical Research.

Recent Advances in the Study of Viruses.

MAY 24, 1938

W. C. GEORGE, Professor of Histology and Embryology, University of North Carolina.

Blood From the Standpoint of Phylogeny.

Ten members and twenty-two associate members were initiated into the Society during the year.

Research Publications

THE JOURNAL OF THE ELISHA MITCHELL SCIENTIFIC SOCIETY

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A Word Unprotected: (Di) smagare and Dante's Use of the Word. *H. D. Austin.*

German and French Dramatic Topics of the Seventeenth Century. *Werner Paul Friederich.*

Identification of Characters in Mulgrave's "Essay upon Satyr." *Maurice Irvine.*

Wordsworth's *Prelude*: The Poetic Function of Memory. *Bennett Weaver.*

Biographical Elements in Homburg's "Todesfurchtsszene." *A. E. Zucker.*

Thomas Moore and English Interest in the East. *Wallace Cable Brown.*

Charles Kingsley and Science. *Mary Wheat Hanawalt.*

Wilhelm Raabe's Treatment of the Emigrant. *F. E. Coenen.*

Volume XXXV, 1—January, 1938

Vincent of Beauvais and the Green Yeoman's Lecture on Demonology. *Pauline Aiken.*

Sir Oton de Graunson—"Flour of Hem That Make in Fraunce." *Haldeen Braddy.*

Some Minor Sources of Lydgate's *Troy Book. E. Bagby Atwood.*

Counterpoint in Herbert. *Albert McHarg Hayes.*

Milton's Technique of Source Adaptation. *Grant McColley.*

The Theatre and the Court at the Close of the Reign of Louis XIV. *C. G. Taylor.*

The Jacobitism of Hamilton of Bangour. *Nelson S. Bushnell.*

Huntington Library Quarterly—Announcement.

Volume XXXV, 2—April, 1938

Source and Intention of *The Four Elements. M. E. Borish.*

Berthelet's Latin-English Publication of the *Apophthegmata Graeciae Sapientum* and Other Sayings Formerly Edited by Erasmus. *John Archer Gee.*

The Usurer's Sin in Elizabethan Literature. *Celeste Turner Wright.*

"The Legend of Cambel and Triamond" in the *Faerie Queene. Jefferson B. Fletcher.*

The Degeneration of Man and Renaissance Pessimism. *Don Cameron Allen.*

Two Elizabethan Expressions of the Idea of Mutability. *Kathrine Koller.*

Some Problems of *A Yorkshire Tragedy. Marc Friedlaender.*

The Christ of *Paradise Regained* and the Renaissance Heroic Tradition. *Merritt Y. Hughes.*

Announcement: French, Italian, and Spanish Renaissance Bibliography.

Recent Literature of the English Renaissance. *Hardin Craig, David Patrick,* and *William Wells.*

Volume XXXV, 3—July, 1938

Shadewell's Use of Hobbes. *Thomas B. Stroup.*
Wordsworth: Forms and Images. *Bennett Weaver.*
Landor's Political Purpose. *George J. Becker.*
The Influence of Addison on Charleston Periodicals, 1795-1860. *Guy A. Cardwell, Jr.*
The Morgan Library Manuscript of Rossetti's "The Blessed Damozel." *John Albert Sanford.*
Caliban Upon Setebos. *C. R. Tracy.*
Some Recent Trends in English Literary Scholarship, with Special Reference to Mediaeval Backgrounds. *George R. Coffman.*

THE NORTH CAROLINA LAW REVIEW

Volume 16, 1—December, 1937

Shaping Judicial Review of Administrative Tribunals. *Ralph M. Hoyt.*
Why a "Burden of Going Forward"? *D. W. Markham.*

Volume 16, 2—February, 1938

The Destructibility of Contingent Remainders in North Carolina. *Frederick B. McCall.*
The State's Legal Business. *Albert Coates.*

Volume 16, 3—April, 1938

Wrongful Death and Contributory Negligence. *Robert H. Wettach.*
Delegation of Powers To and Within Government Corporations. *Harvey Pinney.*
Social Security Encounters Common-Law Marriage in North Carolina. *James P. Lynch.*

Volume 16, 4—June, 1938

Constitutional Restrictions Upon Public Debt in North Carolina. *William Henry Hoyt* and *Jefferson B. Fordham.*
Accounting for Crime. *Albert Coates.*

SOCIAL FORCES

Volume 16, 1—October, 1937

The Historic Pattern of Sociology in the South. *L. L. Bernard.*
Environment and Regional Development in the Colonial Period. *F. Grave Morris.*
Custom, Gossip, Legislation. *T. V. Smith.*
The Social Structure in Relation to the Person. *E. T. Hiller.*
Some Recollections of Lester F. Ward and James Q. Dealey. *Samuel Chiles Mitchell.*
Nine other articles in the departments of Teaching and Research in the Social Sciences; Public Welfare and Social Work; Marriage and

the Family; Race, Cultural Groups, Social Differentiation; Government, Politics, Citizenship.

Volume 16, 2—December, 1937

Culture and Sociology. *William Fielding Ogburn.*
Social Metabolism in Its Bearings on Progress. *Benoy Kumar Sarkar.*
Errors of Sociology. *Earle Edward Eubank.*
Gullies and What They Mean. *Arthur Raper.*
Eight other articles in the departments of Teaching and Research in the Social Sciences; Public Welfare and Social Work; Community and Neighborhood; Marriage and the Family; Government, Politics, Citizenship.

Volume 16, 3—March, 1938

Group Description. *Dwight Sanderson.*
A Biologist Looks at the Profit Motive. *C. Judson Herrick.*
Migration and the Growth of Cities. *Harold F. Dorn.*
The Content of Radio Programs, 1925-1935. *William Albig.*
Structure and Process in Secret Societies. *Noel P. Gist.*
Twelve other articles in the departments of Teaching and Research in the Social Sciences; Public Welfare and Social Work; Community and Neighborhood; Marriage and the Family; Race, Cultural Groups, Social Differentiation; Government, Politics, Citizenship.

Volume 16, 4—May, 1938

Thomas Garrigue Masaryk: Sociologist. *Earle Edward Eubank.*
Social Scientists Explore the Region. *Harry Estill Moore.*
Toward A National Policy for Migration. *Eric Beecroft and Seymour Janow.*
Citizen Participation in the Governments of Reorganized States. *W. Brooke Graves.*
Twelve other articles in the departments of Teaching and Research in the Social Sciences; Public Welfare and Social Work; Community and Neighborhood; Marriage and the Family; Race, Cultural Groups, Social Differentiation; Social Industrial Relationships.

THE UNIVERSITY NEWS LETTER

FEATURE ARTICLES

Industry in North Carolina, 1935.
County-Wide Tax Rates, and State and Local Governmental Costs in North Carolina, 1928-1936.
Inhabitants Per Physician in North Carolina, 1937.
State Department of Justice for North Carolina.
State Support of Public Health, by States, 1937.
Rural Electrification in the United States and in North Carolina, 1937.

Effects of Governmental Centralization in North Carolina.
Public Libraries in North Carolina.
Public Education in the United States: Rank in and Support of Public Education.
Teacher Training Index in North Carolina, 1926-1937.
Cost of Government by States, 1935.
Electric Power and Electric Customers by States, 1937.
Farm Production from Meat Animals, 1935, 1936.
High Schools: Teachers and Enrollment in North Carolina, 1936-1937.
State Care of Mental Patients, by States, 1933.
Bank Resources in the United States, by States, 1937.
Infant Death Rates in the United States and in North Carolina, 1936.
Death Rates from Cancer in the United States, 1932-1936.
Length of School Term, by States, 1935-1936.
State and Local Debt in the United States, 1937.
Assessed Value of Homesteads in North Carolina, 1937-1938.
Teachers' Salaries in the United States, 1935-1936.

THE SOUTHERN ECONOMIC JOURNAL

Volume IV, 2—October, 1937

Population Problems in the South—Part III. *Joseph J. Spengler.*
The Future of Coöperative Purchasing of Farm Supplies in the South. *Joseph G. Knapp.*
A Sketch of Virginia Banking History. *Allan G. Gruchy.*
National Economic Policy: The World War. *D. Clark Hyde.*
Marketing Controls. *Jules Backman.*
The Protective Tariff and the American Merchant Marine. *B. O. Miller.*

Volume IV, 3—January, 1938

Some Problems of Economic Planning by Government. *Calvin B. Hoover.*
Financing the Social Security Program in the South. *Clarence Heer.*
Reciprocal Trade Agreements and the South. *Mark A. Smith.*
Recovery and the Southern Wage Differential. *H. M. Douty.*
A Property Classification Case in Kentucky. *Rodman Sullivan.*
The Netherlands Colonial Balance Sheet. *A. Vandenbosch.*
The Postal Savings System and the Banks. *Louise Sissman.*

Volume IV, 4—April, 1938

Navigation on the Tennessee River. *David E. Lilienthal.*
Some Alternative Bases for Public Power Projects. *Herbert B. Dorau.*
The Public Utility Act of 1935: Its Background and Significance. *Robert H. Tucker.*
Changing Levels in Production, Employment, and Relief. *Don D. Humphrey.*
The Kentucky Rock Asphalt Company. *John B. McFerrin.*
Southern Textile Mills Revisited. *Frank Traver de Vyver.*

Volume V, 1—July, 1938

Regional Transportation Coördination. *C. E. Landon.*
Regulation of Transport Agencies. *James C. Nelson.*
Revision of Railroad Rate Structures. *M. G. de Chazeau.*
Dynamic Theory of Saving and Investment. *Montgomery D. Anderson.*
The English Specie Resumption of 1821. *Cecil C. Carpenter.*
The Durham Central Labor Union. *Joseph J. King.*
The Nature of Economic Regions. *August Lösch.*

THE CAROLINA PLAY-BOOK

Volume X, 3—September, 1937

I Can't Write a Play. *Frederick H. Koch.*
"Funeral Flowers for the Bride," a play. *Beverley Hamer.*
Music in the Theatre. *Paul Green.*
Johnny Q Sees "The Lost Colony." *Bernice Kelly Harris.*
Playmaking at Banff. *Frederick H. Koch.*
Summer Repertory. *Harry E .Davis.*
Play-Acting. *Frederick H. Koch.*
Illustrations: A scene from "Funeral Flowers for the Bride," "The Lost Colony."

Volume X, 4—December, 1937

"Cut Is The Branch That Might Have Grown Full Straight." *Maxwell Anderson.*
The Play in the Audience. *Samuel Selden.*
Sandy, a poem. *Gwendolyn Pharis.*
And So It Began. *Bernice Kelly Harris.*
Founding Fathers. *Brooks Atkinson.*
Strolling Players in North Carolina. *Richard G. Walser.*
On Speech. *Howard Bailey.*
Introducing Howard Bailey. *Frederick H. Koch.*
The Nineteenth Season. *Frederick H. Koch.*
Illustrations: A scene from "Johnny Johnson," Festival visitors.

Volume XI, 1—March, 1938

Negro Ritual Drama. *Frederick H. Koch.*
Georgia Scene. *Rietta Winn Bailey.*
"Washed in de Blood," a play. *Rietta Winn Bailey.*
Immortal Duse. *Frederick H. Koch.*
On the Presentation of the Duse Bust. *Katherine Pendleton Arrington.*
Experimental Production. *Noel Houston.*
Illustrations: A scene from "Washed in de Blood," portrait bust of Eleanora Duse, scene from "Sharecropper," a drawing. *Dan Nachtmann* and *John Roughton.*

Volume XI, 2—June, 1938

Western Canada. *Frederick H. Koch.*
"Still Stands the House," a play. *Gwendolyn Pharis.*
American Theatre. A Radio Interview. *Paul Green.*
The Fifteenth Festival. *Frederick H. Koch.*
The Tournament Winners.
Stage Setting for "The Merry Wives of Windsor," a design. *Russell Smith.*
Illustrations: A scene from "Still Stands the House," Federal Theatre Directors.

SOUTH ATLANTIC BULLETIN

(Supported by the South Atlantic Modern Language Association and the University of North Carolina)

Volume III, 2—October, 1937

Ybor City, Florida. The Largest Spanish-Speaking Settlement in the Southeastern United States. *R. S. Boggs.*

Reprints of American Fiction Classics. *Thomas H. English.*

History of the South Atlantic Modern Language Association, 1932-1937. *John A. Strausbaugh.*

Theses for the Year. *H. K. Russell.*

Annual Bibliographies for Spanish. *R. S. Boggs.*

Book reviews: Warren Stone Gordis, *Some Fundamental Values* (Edward J. Erwin); A. P. Hudson, L. B. Hurley and J. D. Clark, *Nelson's College Caravan* (Hampton M. Jarrell); J. M. Steadman, Jr., *Vocabulary Building* (Edgar Long).

Volume III, 3—December, 1937

Library Problems. *Thomas H. English.*

Germanic Bibliography. *Clement Vollmer.*

Celtic Seminar. *Lawrence Thompson.*

Book reviews: Charles Roberts Anderson, *Journal of a Cruise to the Pacific Ocean . . . with Notes on Herman Melville. H. P. Miller.*

Volume III, 4—February, 1938

Proverb Lore. *R. S. Boggs.*

The McGregor Plan. *Thomas H. English.*

Research in the British Museum. *Beach Langston.*

Book reviews: Urban Tigner Holmes, *A History of Old French Literature . . .* (F. A. G. Cowper); William T. Wynn, *Readings in Georgia Literature* (John Wade); Hudson Strode, *South by Thunderbird* (Sturgis E. Leavitt).

Volume IV, 1—April, 1938

Research in Belgium. *W. B. Napier.*

Education for a Changing World. *Sturgis E. Leavitt.*

Book reviews: Newman I. White, *The Unextinguished Hearth* (Thomas H. English); Ray Palmer Baker and Almonte C. Howell, *The Preparation of Reports* (Andrew J. Walker); Frederick L. Jones, ed., *The Letters of Mary W. Shelley in the Bodleian Library* (Charles E. Mounts); Edgar Long, *Outline of Grammar* (John Walker McCain, Jr.); Paull Franklin Baum, *Dante Gabriel Rosetti, The Blessed Damozel* (George P. Hayes).

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